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CLEVELAND, JULY 18, 1918

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THE IRON TRADE REVIEW

Vol. LXIII Cleveland, July 18, 1918 *No. 3*

Open Market Outlook is Studied

More Dependence Placed by Government Upon Initiative of Producers in Making Distribution Stimulates Interest in Possibilities of Freer Selling—Production Situation Continues Satisfactory—Some Price Revisions

POSSIBILITIES of a return of some nonwar selling of iron and steel are being discussed more pointedly. While tangible developments are few, the trend of expectations appears to be toward a situation of more liberal distribution. This revived talk has been due in part to the open authority recently given the mills by the steel director to ship small lots to any buyer without permit. In a deeper and probably more significant sense, it has been caused by the growing conviction in some quarters that essential demands now in sight can be met by the mills as needed and that there may be something to spare. It is manifest that any surplus of this character which may appear will vary in accordance with the product. It is pointed out that the factor of time when the material will be required for essential needs is all-determining. Recent instances where shell steel production has been held back because forging operations have not been able to keep pace are cited. Due to this fact consumers have been having less difficulty in meeting their billet requirements. Some producers of war articles now are understood to have their steel supplies under cover for some months ahead.

A more favorable production showing is contributing to the renewed speculation over the outlook for freer selling conditions. The Steel corporation plants this week are up to 96 per cent of ingot capacity, compared with 95 per cent last week. Coke supplies are reported more satisfactory from all sides. Weather conditions continue highly favorable and with labor showing a better disposition, production and deliveries have been more nearly normal.

Bar Resales of Steel

Attention of the war industries board has been called to the fact that certain manufacturers now on the preference list for steel supplies are reselling steel that has been delivered to them as a result of government priority assistance. In order to prevent abuses of this priority privilege, the board has passed a resolution that if any such resales are made hereafter without approval of the steel director, the manufacturer responsible will be dropped from the preference list and will not receive further priority assistance.

Buying Iron for 1919

Pig iron buying for 1919 delivery continues to spread. One important lake and valley interest has been a large seller in the week, disposing of about 100,000 tons for that period to consumers engaged in essential lines of production. Other sellers are falling into line. Makers see a considerable advantage in the way of a more satisfactory credit situation by taking this business ahead instead of waiting for their books to be filled with indiscriminate government allocations. Buffalo furnacemen see in the increased disposition of the government to leave distribution more in the hands of the furnaces a nearer possibility of some kind of an open market than had been expected. Under the prevailing conditions of restricted buying, furnace order books have been running down steadily and makers are beginning to show more interest in restoring some of this tonnage. A new announcement by the steel director is that no priority certificates in pig iron are to be issued. Increased production of basic in the south at the expense of foundry iron is to result from the distribution now practically completed of about 80,000 tons of the large British order. Three Alabama makers will fill this order. The remaining 100,000 tons will be filled by an Ohio steel works interest with furnaces in three states.

Steelmakers to Confer

Another meeting of iron and steel producers and government representatives is scheduled this week following the one held in New York on Monday. None of the matters at issue, including the standard rail price, was settled at the latter. A canvass of bar mill conditions now being made by the government apparently is preliminary to relieving the rail mills of some of their shell steel obligations.

JULY 18, 1918

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Utilizing the Nation's Full Power

"AN organizer is a man with a picture who passes the buck to other men," says Charles A. Otis, chief of the resources and conversion section of the national war industries board.

Mr. Otis' definition is applicable in establishing the importance and responsibility of the individual manufacturer in the creation of an organization that will gain the utmost service for the nation from its industrial resources. Without proper assistance from the thousands of manufacturers and business men who have been asked to enlist in this work Mr. Otis' picture will remain only a picture; with all parts of the organization functioning properly it will prove of tremendous value to the government.

As Mr. Otis' organization is developing it is proving nothing more nor less than a simple, efficient means for the manufacturers and business men of the nation to inform the government quickly and accurately what can be done in almost any line of production. It is to be an information bureau, having no standing in law, but playing a vital part in establishing industrial order.

The underlying purpose of the organization is to have the manufacturers of the country produce war material in the simplest and most expeditious way. If the government requires 100,000 pickaxes, for instance, and there is a shortage of the article, the plan does not contemplate the building of a factory to make pickaxes if a factory already in existence can be converted to making pickaxes. An existing factory may be producing nonessentials, consuming material and labor, when it should be making pickaxes. Where such changes can be made to add to the resources of the government the section will so advise. War work is now a pre-requisite.

When war was declared in 1914 there was an unexampled rush for war material in the United States. There was more money than supplies, a condition which led to great confusion in the industrial world. When the United States got into the war, development continued along confused lines to the detriment of the nation. Then Mr. Otis conceived his picture. It was to re-establish order and unify the industrial resources, to make them all function as departments of one vast organization. New factories were not so important in this scheme as the proper use of established ones. To be sure, new factories will be needed, but his creed is to get the maximum of war production from those already at hand.

The system should prove as helpful to manufacturers as to the government. Instead of small manufacturers rushing to Washington, New York and other cities to pick up orders the orders are to come to them if they "can deliver the goods." The organization is to inform the manufacturers what is wanted as well as to tell the government what can be produced.

Twenty zones have been created, the director being represented in each zone by a commissioner to whom he looks for information and to whom information is given. The commissioners have their zones organized and committeemen named.

Manufacturers and business men are relied on to volunteer for such service and make accurate reports, for, as Mr. Otis says, the responsibility is now on their shoulders. The new system represents applied efficiency in its practical sense. That some such group organization has been greatly needed is attested by the spirit of enthusiastic teamplay with which manufacturers in various districts are getting behind the plan.

Preparing for Peace Days

THE most significant thing about the historic ship launching on the nation's birthday is the fact that right in the midst of war we are making big and important preparations for peace. To be sure, the immediate needs for this tonnage is to transport troops, munitions and supplies overseas. But it requires no prophetic powers

to foretell that this conflict like all others is going to end sometime. There is a limit to all things material and war is no exception. As time goes on, the submarine is becoming less and less of a menace. Barring new successes for it, now unforeseen, it is a reasonable expectation that comparatively few of the boats that slid down the ways on the Fourth of July and that now fill the ways are destined to meet their fate through a torpedo.

The tonnage that escapes the vicissitudes of the war is going to form the nucleus of the American merchant marine of peace times. It is to be hoped, therefore, that the great momentum that is reflected in the recent launchings will be maintained. In building "ships, ships and more ships," it is of prime importance that the main object of the great effort of "building a bridge of ships to Pershing" be always kept in the foreground. But this is in nowise incompatible with the object of building for the future. In fact, the objects supplement one another. The shipbuilding campaign must not slacken when the first signs of peace are visible, for peace is going to create problems quite as difficult of solution as were our war problems and without sufficient ocean tonnage our peace problems may be harder than those of our first war year.

Productive capacity of American manufacturers has been greatly enlarged by the foreign demand created by the war. Our allies, now our best customers, are likely to need less of our goods in the aggregate once the men now in the battlefields return to their former occupations. Still it will be a long time before those nations with which the United States is now aligned will be self-sustaining to the point they were prior to the war. To effectively find a full use for the additional industrial capacity of the country, our foreign trade must be built up on larger and more substantial lines and on a more extensive scale than ever before. We must not sacrifice the gains we have made in our trade with the South American countries, thanks to Germany's impotency. The legislation has been enacted permitting of combinations among American manufacturers for export business. Now let us make this legislation really effective by the creation of the merchant marine and by so doing reintroduce to the four corners of the earth the American flag, so well known in our early maritime history, but sadly missing in later years.

Business Changes Its Viewpoint

PROBABLY no such revolutionary change in freight rates ever has been made as that put into effect June 25 by order of the railroad administration. It is significant of a changed attitude toward the railway interests of this country on the part of business.

After years of struggles to obtain lower rates and strenuous resistance to the efforts of railroads to obtain advances here and there, an organized, systematic effort to keep freight charges as low as possible, business in the United States calmly accepts an advance of about 25 per cent on existing rates. Scarcely a protest is heard and the entire program, transcending anything imagined in the rosiest dream of a railway official seeking to keep up service on a starvation traffic income, has gone through without a slip.

In ordinary times the consumer would have paid the added impost—in the days when increased rates were fought. At present much of the increase will be borne by the producer who cannot pass the increased cost of raw materials along to his customer, since his price is fixed by the government at a limit he cannot pass. The increased rate on the manufacturer's finished product for carrying it to the consumer will fall on the latter. So the burden is better distributed than formerly was the case.

But the temper of the nation of business men is shown nowhere better than in the ready acceptance of the new conditions, without protest and in full understanding that the added income is deemed necessary to maintenance of adequate transportation service.

Wide Use of Discard Steel

COMMENT was made some time ago in these columns as to the increasing use of discard steel for different lines of manufacture. The view was expressed then that this high carbon material was finding greater favor among consumers the more it was used. Naturally, it was accepted for the manufacture of commercial articles owing to the scarcity of steel ordinarily used for these purposes.

At first there was considerable hesitancy about using discards except as scrap and it was not in much demand even for this purpose. But necessity forced its use to become general until today there is a scarcity of this grade of steel as well as of soft steel and it commands prices equal to or almost equal to the government levels fixed for standard semifinished forms. The economic results to the industry from the general consumption of discard steel have been large as the latter has served to relieve the acute stringency in new steel for many lines of industry.

The percentage of discard steel to the total ingot output is not so great as it was in the early days of this country's belligerency, due to less severe specifications, which were unnecessarily rigid and to the greater skill of manufacturers in meeting requirements. The production, however, is extremely large, and the shell steel output will increase as our fighting forces increase. The problem of today is to build up sufficient forging capacity, to accommodate the tonnage of projectile steel which the mills are able to roll.

Iron and Steel Prices

Corrected to Wednesday Noon

SCRAP, WAREHOUSE AND IRON ORE PRICES ON PAGE 184

PIG IRON

Bessemer, valley	$35.20
Bessemer, Pittsburgh	36.50
Basic, Pittsburgh	33.40
Basic, eastern Pa.	32.00
Basic, Buffalo	32.00
Malleable, Pittsburgh	34.90
Malleable, Chicago	33.50
Malleable, Buffalo	33.50

GOVERNMENT SCHEDULE

1.75 to 2.25 silicon (No. 2 foundry, No. 2 plain, and No. 3 southern), $33 furnace base.

2.25 to 2.75 silicon (No. 2X, No. 1 Northern foundry, and No. 2 southern), base plus 50c.

2.75 to 3.25 silicon (No. 1X, No. 2, soft), base plus $1.50.

Over 3.25 silicon, $34.50, plus $1.00 for each ½ per cent of silicon.

No. 1X, Phila.	35.25 to 35.50
No. 2 foundry, Pittsburgh	34.40
No. 2 foundry, Cleveland	33.00
No. 2 foundry, Ironton	33.00
No. 1 foundry, Chicago	33.50
No. 2 foundry, Chicago	33.00
No. 2X foundry, Phila.	34.25 to 34.50
No. 2X foundry, N. J. tide	34.25 to 34.50
No. 2X foundry, Buffalo	33.50
No. 2 plain, Philadelphia	33.75 to 34.00
No. 2 plain, N. J. tide	33.75 to 34.00
No. 2 southern Birmingham	33.00 to 33.50
No. 2 southern, Cincinnati	37.10
No. 2 southern, Chicago	38.50
No. 2 southern, Phila.	40.10
No. 2 southern, Cleveland	38.50
No. 2 southern, Boston	41.00
No. 2 southern, St. Louis	39.75
Virginia, No. 2X, furnace	33.50
Virginia, No. 2X, Phila.	37.60
Virginia, No. 2X, Jersey City	37.90
Virginia, No. 2X, Boston	38.20
Gray forge, Pittsburgh	33.40
Silveries, 8 per cent, furnace	45.50
Silveries, 8 per cent, Chicago	48.50
Low phos. standard, Phila.	56.00
Low phos. Lebanon, furnace	50.00 to 52.00
Low phos., Pittsburgh standard	54.40
Charcoal, Superior, Chicago	37.70 to 38.00
Charcoal, Superior, Buffalo	37.50
Charcoal, southern to 2 per cent silicon	43.00

COKE

(At the ovens)

Connellsville furnace	$6.00
Connellsville foundry	7.00
Pocahontas furnace	8.00
Pocahontas foundry	8.00
New River foundry	8.00
New River furnace	8.00
Wise county furnace	7.25
Wise county foundry	8.25

FERROALLOYS

Ferromanganese, 70 per cent delivered	250.00
Spiegel, 16 per cent fur., spot.	75.00
Spiegel, contracts, furnace.	75.00
Ferrocarbon titanium, carloads, maker's plant	200.00
Ferrosilicon, 50 per cent, second quarter, Pitts.	150.00 to 160.00
Ferrosilicon, 50 per cent, Pitts., remainder of 1918	150.00 to 160.00
Bessemer ferrosilicon, 10 per cent.	55.00
Bessemer ferrosilicon, 11 per cent.	58.30
Bessemer ferrosilicon, 12 per cent.	61.60

Ferrosilicon prices at Ashland, Ky., Jackson and New Straitsville, O.

SEMIFINISHED MATERIAL

BILLETS AND BLOOMS

Open-hearth, Pittsburgh	$47.50
Open-hearth, Philadelphia	51.30
Open-hearth, Youngstown	47.50
Bessemer, Pittsburgh	47.50
Bessemer, Youngstown	47.50
Forging, Pittsburgh	60.00
Forging, Philadelphia	63.80

SHEET BARS

Open-hearth, Pittsburgh	$51.00
Open-hearth, Youngstown	51.00
Bessemer, Pittsburgh	51.00
Bessemer, Youngstown	51.00

SLABS

Pittsburgh and Youngstown.	$50.00

WIRE RODS AND SKELP

Wire rods, Pittsburgh	$57.00
Grooved skelp, Pittsburgh	2.90c
Sheared skelp, Pittsburgh	3.25c

SHAPES, PLATES AND BARS

(In cents per pound)

Structural shapes, Pitts.	3.00c
Structural shapes, Phila.	3.23c
Structural shapes, N. Y.	3.245c
Structural shapes, Chgo.	3.27c
Tank plates, Chicago	3.52c
Tank plates, Pittsburgh	3.25c
Tank plates, Philadelphia	3.48c
Tank plates, New York	3.495c
Bars, soft steel, Pittsburgh	2.90c
Bars, soft steel, Chicago	3.17c
Bars, soft steel, New York	3.145c
Bars, soft steel, Phila.	3.13c
Bar iron, Phila.	3.73c
Bar iron, Cleveland	3.67c
Bar iron, New York	3.745c
Bar iron, Pittsburgh	3.50c
Hard steel bars ,Chicago	3.00c

RAILS, TRACK MATERIAL

Angle bars, Pittsburgh base.	3.25c
Angle bars, Chicago base	3.25c
Standard bessemer rails, mill	$55.00
Stand. open-hearth rails, mill	57.00
Light rails, 25 to 45, mill	3.00c
Relaying rails, light, St. L.	60.00 to 67.00
Spikes, railroad, Pitts.	3.90c
Track bolts, Pittsburgh	4.90c
Track bolts, Chicago	5.115c
Tie plates, Chicago	3.25c

WIRE PRODUCTS

(Per 100 lbs. to jobbers; retailers 5c more)

Wire nails, Pittsburgh	$3.50
Coated nails, Pittsburgh	3.45
Plain wire, Pittsburgh	3.25
Galvanized wire, Pittsburgh.	3.95
Polished staples, Pittsburgh.	3.65
Galvanized staples, Pbgh.	4.35
Barb wire, painted, Pitts.	3.65
Barb wire, galvanized, Pitts.	4.35
Cut nails, Pittsburgh	4.00

CHAIN, PILING, STRIP STEEL

(In cents per pound)

Chain, 1 in. proof coil, Pitts.	7.50c
Sheet piling, base, Pitts.	4.00c to 5.00c

Cold rolled strip steel, hard coils, 1⅛ inches and wider by 0.100 inch and heavier, base per 100 pounds, 6.50c.

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SHEETS

(In cents per pound)

SHEET MILL BLACK

No. 28, open-hearth, Pitts.	5.00c
No. 28, bessemer, Pitts.	5.00c
No. 28, open-hearth, Chi.	5.27c

TIN MILL BLACK

No. 28, open-hearth, Pitts.	5.00c
No. 28, bessemer, Pitts.	5.00c

GALVANIZED

No. 28, open-hearth, Pitts.	6.25c
No. 28, bessemer, Pitts.	6.25c
No. 28, open-hearth, Chi.	6.52c

BLUE ANNEALED

No. 10, open-hearth, Pitts.	4.25c
No. 10, bessemer, Pitts.	4.25c
No. 10, open-hearth, Chi.	4.52c
No. 10, open-hearth, Phila.	4.48c

TIN PLATE

(Per 100 lb. box)

Tin plate, coke base, Pitts.	$7.75

IRON AND STEEL PIPE

Base Pittsburgh

Base, Pittsburgh	Black Per cent off	Galv. Per cent off
⅜ to 3 in., butt, steel	51	37½
¼ to 3 in., butt, iron	33	17

BOILER TUBES

Steel, 3½ to 4½ inches, l. c. l.	30
Iron, 3½ to 4½ inches, c. l.	12½

CAST IRON WATER PIPE

(Class B Pipe)

Class A pipe is $1 higher than Class B.

Four-inch, Chicago	65.10
Six-inch and over, Chicago	62.05
Four-inch, New York	66.00
Six-inch and over, N. Y.	63.00
Four-inch, Birmingham	58.00
Six-in. and over, Birmingham	55.00

HOOPS, BANDS, SHAFTING

Hoops, Pittsburgh	3.50c
Bands, Pittsburgh	3.50c
Hot rolled strip steel, Pitts.	3.50c
Hot rolled strip steel, Pitts. stamping quality	4.00c
Shafting, Pitts., carloads	17 off to list
Cotton ties, July, per bundle	$1.93

RIVETS

Structural rivets, Pittsburgh.	4.40c
Boiler rivets, Pittsburgh	4.50c
Rivets ⅞ in. & small., Pitts.	50 and 10 off

NUTS AND BOLTS

(Delivered within 20-cent freight radius)

CARRIAGE BOLTS

(¾ x 6 inches, smaller and shorter)

Rolled thread	50–5 off
Cut thread	40–10–5 off
Larger and longer	40 off

MACHINE BOLTS

(⅜ x 4 inches, hot pressed nuts)

Rolled thread	50–10–5 off
Cut thread	50–5 off
Larger and longer	40–10 off
Cold pressed semifinished hexagon nuts ⅝ in. and larger	60–10–10 off
Cold pressed semifinished hexagon nuts ⅝ in. and smaller	70–5 off
Gimlet and cone point lag screws	50–10 off

NUTS

Hot pressed, square blank	2.50c off
Hot pressed, square tapped	2.30c off
Hot pressed, hexagon blank	2.30c off
Hot pressed, hexagon tapped	2.10c off
Cold pressed, square blank	2.25c off
Cold pressed, square tapped	2.00c off
Cold pressed, hexagon blank	2.25c off
Cold pressed, hexagon tapped	2.00c off

Prices Present and Past

(Yesterday, a month ago, three months ago and a year ago)

Quotation on leading products July 17, average for June 1918, average for April 1918, and average for July, 1917. Prices are those ruling in the largest percentage of sales at the dates named.

	Prices July 17, 1918	Average prices June, 1918	April, 1918	July, 1917
Bessemer pig iron, Pittsburgh..	$36.60	$36.35	$36.15	$57.95
Basic pig iron, Pittsburgh.....	33.40	33.20	32.95	53.20
*No. 2 Foundry pig iron, Pitts.	34.40	34.15	33.95	55.95
*No. 2, Foundry pig iron, Chi.	33.00	33.00	33.00	55.00
Lake Superior charcoal, Chicago	37.70	37.50	37.50	59.50
Malleable, valley	33.50	33.50	33.50	55.00
Malleable, Chicago	33.50	33.50	33.50	55.00
**Southern, No. 2, Birmingham.	33.50	33.50	33.50	46.00
*Southern Ohio No. 2, Ironton	33.00	33.00	33.00	54.25
Basic, eastern Pa.....	32.00	32.00	32.00	50.75
**No. 2X Virginia, furnace....	33.50	33.50	33.50	52.25
**No. 2X foundry, Philadelphia	34.50	34.25	34.25	54.25
Ferromanganese, 70%, delivered	250.00	250.00	250.00	430.00
Bessemer billets, Pittsburgh....	47.50	47.50	47.50	100.00
Bessemer sheet bars, Pittsburgh	51.00	51.00	51.00	105.00
Open-hearth sheet bars, Pitts..	51.00	51.00	51.00	105.00
Open-hearth billets, Pitts.....	47.50	47.50	47.50	100.00
Steel bars, Pittsburgh.....	2.90	2.90	2.90	3.87
Steel bars, Chicago.....	3.17	2.90	2.90	4.50
Iron bars, Philadelphia.....	3.73	3.685	3.50	4.759

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

	Prices July 17, 1918	Average prices June, 1918	April, 1918	July, 1917
Iron bars, Cleveland.....	$3.64	3.64	3.64	4.50
Iron bars, Chicago mill.....	3.50	3.50	3.50	4.50
Beams, Chicago	3.27	3.00	3.00	5.88
Beams, Pittsburgh	3.00	3.00	3.00	4.50
Beams, Philadelphia	3.23	3.185	3.185	4.909
Tank plates, Pittsburgh.....	3.25	3.25	3.25	5.62
Tank plates, Chicago.....	3.52	3.25	3.25	9.64
Tank plates, Philadelphia.....	3.48	3.435	3.435	10.159
Sheets, blk., No. 28, Pitts.....	5.00	5.00	5.00	9.00
Sheets, blue anld., No. 10, Pitts.	4.25	4.25	4.25	8.50
Sheets, galv., No. 28, Pitts....	6.25	6.25	6.25	10.25
Wire nails, Pittsburgh.....	3.50	3.50	3.50	4.00
Connellsville furnace coke.....	6.00	6.00	6.00	12.50
Connellsville foundry coke.....	7.00	7.00	7.00	13.00
Heavy melting steel, Pitts.....	29.00	29.00	29.00	40.25
Heavy melting steel, eastern Pa.	28.50	28.50	28.30	37.00
Heavy melting steel, Chicago..	29.00	29.00	28.63	35.50
No. 1 wrought, eastern Pa....	34.00	34.00	34.00	54.00
No. 1 wrought, Chicago.....	33.50	33.50	33.50	43.75
Rerolling rails, Chicago.....	34.00	34.00	34.00	46.25

(For Additional Prices See Page 184)

Large Sales of Iron Made For 1919

One Leading Producer Disposes of 100,000 Tons in Week and Other Makers Are Showing More Interest—Order Books Run Down and More Talk of Open Market Selling is Being Heard

Cleveland, July 16.—Heavy selling of pig iron for delivery during the first half of 1919 by certain producers in lake and valley territories has continued. One of these interests now has disposed of approximately 100,000 tons for that period of shipment, largely of foundry and malleable grades. This activity is being carried further as there is an active demand for 1919 iron and it is growing. The producing interest which has taken the lead in selling iron for next year, has been confining its sales to those consumers who are filling direct and indirect war business. Other producers in this territory during the past week have begun to make sales for next year but as yet these have only been in one or two cases. It is now generally understood that a steel works producer with furnaces in northern Ohio, western Pennsylvania and in New York state, will supply 100,000 tons of the 180,000 tons of basic which has been undergoing allocation for the British government. The remainder of this tonnage, as previously stated, is to go to the south. The tonnage of other allocations continues to grow heavily. During the past week, these have totaled approximately 40,000 tons, bringing the aggregate of such distribution of orders since May 1 to about 240,000 tons. This grand total has included 82,000 tons of foundry, 26,000 tons of malleable, 87,000 tons of basic, 24,000 tons of low phosphorus, 2000 tons of bessemer ferrosilicon and silveries and 1100 tons of charcoal and scattered tonnage. The week's orders were made up of 7300 tons of basic for the Pittsburgh district; 13,000 tons of foundry and malleable for Detroit; 1500 tons of foundry for Bridgeport, Conn.; 1500 tons of foundry for Hastings, Mich.; 1200 tons of foundry for Richmond, Va.; and 600 tons of bessemer for Pittsburgh. The remainder was in scattered orders. Pending requests numbering 68 total approximately 60,000 tons.

New Orders Are Lighter

Boston, July 15.—The time has come when the pig iron trade is able to report a lessening in the receipt of orders owing to the general knowledge that there is no iron in sight. People are getting tired of placing their demands with the realization that there is no hope. The trade is generally sugesting that customers take up with the war industries board their particular demands and in numerous instances these suggestions have been followed. There are still many contracts of 1916 standing on the books, though they are being cleaned up slowly. The trade looks for no particular change in the situation until after the war, as the government is allocating everything in sight.

Selling 1919 Foundry

New York, July 15.—Foundry iron is being sold here for delivery over the first half of 1919. The seller is an Alabama furnace. So far not a large tonnage in the aggregate has been booked and the seller, since the initial transactions were put through, the middle of last week, is hesitant about taking on any more tonnage for this delivery. Outside of this particular business, most of the activity in the pig iron market here is comprised of government allocations and these involve only small

tonnages of foundry. Some sales of foundry iron for prompt shipment are being made, but they also involve only small tonnages, and are going to consumers who will use the iron for government work. As a matter of fact, shipments of pig iron now are being made at a rate which is out of all proportion to new bookings. As a result, the tonnage on furnace books has shrunk materially of late. Some furnace interests, therefore, again are more inclined to believe that at least for the summer and fall months, there will be enough iron to go around.

Believe Supply Sufficient

Philadelphia, July 16.—At a meeting of the American pig iron distributors in this city today to discuss the general situation the opinion was expressed that the government does not desire nor is it necessary to control foundry iron shipments. The general conviction also was manifested that there is enough iron now being produced to meet the requirements of the present situation. Pig iron business in the past week in this territory has been made up almost entirely of allocations. These have been mainly in small tonnages. Little has been done in this district by producers in taking on business for 1919 delivery, although there is more interest being manifested by consumers in that period of shipment and some action probably will be forthcoming shortly.

Bookings For 1919 Not Heavy

Pittsburgh, July 16.—Furnace interests generally still are not making any commitments for 1919 delivery, although some fair sized tonnages for the first quarter have been sold by some. One sale in this district called for 5000 to 10,000 tons of foundry. These contracts have been made subject to government regulation as to prices, distribution, etc., and in the event regulation ends before shipments are completed the unshipped tonnage is to go at the levels prevailing when the contracts were made. Most producers appear to be unwilling to contract because of the uncertainty as to whether they will be able to ship strictly in accordance with the contracts by reason of distribution being subject to government action according to what it considers the most pressing needs. Sales so far made for delivery in 1919 appear to have been closed with consumers engaged on extremely important government work. Inquiries coming to makers are light largely because consumers who have not covered requirements appreciate that there are no offerings and that allocation is being done through the war industries board. One user is in the market for 3000 tons of bessemer iron for delivery over the remainder of the year. Complaints of some furnaces that they are unable to make their regular grades of iron at the government prices have been partially solved. This has been done by shifting them to the production of bessemer iron low in phosphorus, 0.070 or under, for which differentials over the bessemer base price are carried. One furnace in southern Ohio and another in Tennessee have changed over to this kind of production.

Brokers' Services Preserved

Chicago, July 16.—Keen interest is expressed in the announcement by Steel Director Replogle that pig iron producers may distribute their product in accordance with the schedule of purposes and without priority certificates. Brokers in particular feel that in addition to simplifying the distribution, the new order will preserve the useful services which are rendered in procuring needed iron for manufacturers. Under the strict priority system, the transaction of buying iron was primarily one in which the producer and the manufacturer were obliged to come in contact in order to secure the necessary priority and although commissions were paid, it was thought that they would in time be abandoned. The procedure under the new order, it is thought, will be similar to that which has been followed by some southern furnaces. It has been the custom recently for the producer to check up the questionnaires and then distribute the week's output proportionately through the successive classifications of the preferential list. In this manner a foundry with 50 per cent ship work would receive 50 per cent of his requirements at once, then after all requirements under ships were supplied he would receive his proportion of iron for aircraft production, and thus successively through the preferential list. Any iron remaining after this distribution was allotted to inquirers upon advice from the steel director. There is doubt as to whether the iron remaining in excess of the preferential distribution may not be allotted without special instruction, as one furnace in response to inquiry was allowed to ship some off grades and special analysis iron without designating the specific destinations. Inquiry continues heavy, with an increasing demand for first half of 1919. Some producers are booking 1919 orders where 100 per cent government work is shown. The form furnished by the institute is sent in response to inquiry for first half iron, and the data shown upon its return determine whether the order is booked.

New System May Be Advantageous

Buffalo, July 16.—There is considerable inquiry for pig iron but as the allocating system obtains and this is all made from Cleveland, inquirers are referred to the government offices there. Producers here are discussing the notice received from the war industries board in which it is explained that Washington does not intend to issue priorities certificates on pig iron but is going to install something in the nature of an honor system, whereby producers may familiarize themselves with the sort of industries needing iron most urgently and ship accordingly. This new system, if carried out, producers believe, may establish something in the line of an open market later. It is understood that the notice can be construed as allowing producers who are working on, for example, an 80 per cent government requirement basis, to distribute the remaining 20 per cent for domestic uses. In fine, it puts the production and shipment of pig iron up to the integrity of the furnacemen. It may readily be perceived that government requirements will not suffer if this leeway is permitted, because furnaces must of necessity make a weekly report on shipments and if there was any disposition to slight the war demand, this disposition could not endure. Furnacemen who are beginning to digest this new development are hopeful that it will be of benefit to the industry. The development has helped to stir up some talk of the 1919 market but at the present time it is only confined to talk. There is no sign of a buying movement for 1919, and furnaces, inasmuch as prices are being regulated by the government, are not disposed to sell for extended futures. A furnace with local interests, located at Troy, N. Y., has been put on ferromanganese.

Engage Future Tonnage

Cincinnati, July 15.—The inquiry is not quite as heavy as it was a week ago. However, stovemakers have in the hands of selling agencies orders to secure for them any kind of iron possible for shipment this year. It begins to look as if there will be some iron for distribution to nonessential industries during the last quarter of the year, but nothing definite as to this can be given out. Some interest is being taken in iron for

shipment in the first quarter of next year and a few sales have been made by local firms, but most of this tonnage is for melters in Chicago territory. These buying firms who are looking so far ahead are understood to be engaged strictly in war work and they are making engagements far enough in the future to insure them carrying out their contracts on time.

Nonwar Users Get Tonnage

St. Louis, July 13.—There has been virtually no change in the pig iron situation. Deliveries are holding up in excellent shape, and nonwar plants are getting small tonnages on old contracts, but are frank to admit they are surprised to receive them, and are expecting a total cessation in supplies any day. There is no selling, and producers and agencies are devoting all their energies to the expedition of shipments and dealing out iron according to the government's desires. Inquiries from nonwar users continue to drift in. Representatives of southern producers are advising their customers in this district that little if any, foundry iron will be left over after essential demands have been satisfied. The leading Birmingham furnace interest will have even less foundry iron than anticipated, due to the decision to convert two of its furnaces to the manufacture of basic to fill its portion of the large British order.

To Increase Basic Capacity

Birmingham, Ala., July 16.—In the distribution of the order for 180,000 tons of basic iron to be supplied Great Britain in August, September and October, the south is to produce 80,000 to 100,000 tons. The Birmingham district will supply more than three-fourths of the southern proportion. The Woodward Iron Co., the Sloss-Sheffield Steel & Iron Co. and the Alabama Co. are known to have been given portions of the contract.

Southern furnaces apparently have no iron to offer, save a little tonnage on off grade, for the last half of the year. The manufacturers are strictly adhering to the government instructions in making deliveries. Furnace stocks still are being reduced. Production of iron in Alabama will show some improvement by the blowing in of the first of the three Cole furnaces of the Sheffield Iron Corp., at Sheffield, Ala., this week, with an expected output of 250 tons daily. Another furnace now undergoing repairs will be ready within a week or so. To offset this one Alabama furnace is about to be blown out for repairs.

Coke Supply Satisfactory

General Reports Show Shipments More Adequately Meet Demands —Cool Weather and Better Attitude of Labor Helps

Pittsburgh, July 16.—Offerings of free coke are extremely light and when made are quickly sold. It was expected that by this time there would be sizable lots of both furnace and foundry grades available over and above contracts but this situation has not developed. This is partly due to the fact that production in the Connellsville region has not reached the proportions hoped for and also to the fact that furnaces having contracts are taking an excess tonnage that producers occasionally turn out. The labor situation in the region has improved somewhat, but still remains unsatisfactory. The car supply is being maintained at a high rate and exceeds the loading capacity. Contracting for next year is being done only to a moderate extent. Some large producers are not making contracts for this delivery because government regulation makes it uncertain as to whether they will be able to fulfill their obligations and also owing to the fact that it is unnecessary so far as prices are concerned inasmuch as they are subject to government regulation. Some contracts made, all subject to government regulation, provide that in the event regulation ends before they are filled, prices to be paid on unshipped tonnages will be those existing at the time the contracts were closed. Others provide that such unshipped tonnage is to go at the government prices last made. Production for the week ending July 6 totaled 349,896 tons as compared with 352,590 tons during the preceding week, according to the *Connellsville Courier.*

Take Up All Offerings

Cleveland, July 16.—Such offerings of foundry coke for the first half or all of 1919 delivery which have been recently made to regular consumers in this territory by leading Connellsville producers have all been taken up by the buyers. The individual tonnage has been the same as that ordered during the present year.

Supply Is Ample

Boston, July 15.—The coke industry is "riding along easily," in the words of the sales manager of New England's greatest producer. There is plenty of coke for all demands and there will continue to be a sufficient supply so long as the coal movements are as satisfactory as at present. Ordinarily coke is being stored at this season, but so far this summer not a ton has been set aside for accumulation. Last year with conditions somewhat similar 10,000 tons had accumulated, and by Oct. 1, there were 16,000 tons in storage. The maximum storage in antewar days was 40,000 tons, the amounts varying on account of weather and fuel.

May Cut Virginia Tonnage

Cincinnati, July 15.—Optimistic advices are being received from Connellsville oven operators. Labor seems to be taking more interest in getting out production and cool weather also has lent considerable impetus. While common labor for loading coke still is somewhat scarce, shipments are forwarded more promptly than for some time past. Some apprehension still exists as to the proposed move on the part of the fuel commissioner to reduce shipments from the New River, Pocahontas and Wise County fields to points above the Ohio river.

Extensive Contracting Done

St. Louis, July 13.—Dealers here report almost limitless demand for all grades of coke, with available supplies still much under requirements. None of the principal melters has sufficient to make him feel entirely comfortable and unusual efforts are being made to provide for future requirements. There has been extensive contracting for last half requirements since the first of July, but so far as can be learned no additional needs above first half consumption are being taken care of in the new bookings. The foundry interests have accepted without a murmur the advance due to the increase in freight. Further improvement in deliveries from the east is reported this week. Points to the west and southwest are getting more foundry coke than has been the case in many months, but melters in that region still are far behind normal.

Production Still Increases

Birmingham, Ala., July 16.—Coke production shows a slight increase as the coal output improves in the south and in the Birmingham district in particular. There is response to the appeals being made to the coal miners and mine employes. A recent revision in coke prices provides a slight advance for New Castle fuel.

Demand For Scrap Revives

Buyers Come Into Market More Freely in All Districts—Heavy Melting Steel Supply Continues Greatly Inadequate

FOR COMPLETE SCRAP PRICES SEE PAGE 184

Chicago, July 15.—Steel and malleable scrap are in active demand with cast iron forming a secondary but also heavy requirement. Rolling mill grades are less brisk owing to the quiet iron bar market at the present time. The scarcity of scrap which has been steadily developing for several weeks is apparent, although some railroad offerings and a slight increase in shell discards and turnings are offering a larger volume to supply the more rapidly mounting demand. Among the railroads which are offering miscellaneous grades at present are the Milwaukee, St. Paul & Sault Ste. Marie, 1000 tons; the Monon, 500 tons; the Chicago, Indianapolis & Louisville, 350 tons; the Chicago, Milwaukee & St. Paul, 1050 tons; the Chicago, St. Paul, Minneapolis & Omaha, 450 tons; and the Kansas City Terminal, 500 tons.

Demand Remains Unsatisfied

Boston, July 15.—There still continues to be a greater demand for scrap than can be satisfied. Movements change little from week to week and there is likely to be little change in the future except as Washington dictates. The scrap men believe that conditions will be better rather than worse, but they do not expect a chance to do much greater business for many weeks. Labor conditions vary from week to week. Ten days ago there was plenty of labor. Today there is a shortage and movements are hindered.

Labor Scarce at Yards

New York, July 15.—Although scrap iron and steel continue to move from this district in large volume, demand is so great that it is difficult to find enough to go around. Much of the current activity is in heavy melting steel and its substitutes. Large dealers are complaining about the labor shortage at yards, which is so acute that even where the scrap is available, not all of the tonnage can be handled.

Can't Get Desired Tonnage

Philadelphia, July 16.—The active demand for scrap continues but consumers still find their efforts blocked to obtain the tonnage desired because of the shortage of the supply. The stringency in heavy melting steel especially remains marked and this continues to cause consumers to utilize various other grades in their practice. The prevailing shortage of scrap is due to some extent to the lack of labor at yards. This prevents the latter from handling their usual tonnage.

Turnings Reported Scarce

Pittsburgh, July 16.—Machine shop turnings apparently are being substituted in sizable quantities for heavy melting steel for open-hearth consumption and now are reported to be scarce. Up to recently there was a much better supply of turnings than existed in most grades of old material. Consumers are paying the fixed price of $19 and where they purchase through dealers are giving the latter a commission of 3½ per cent. One transaction of the past week involved 3500 tons plus the commission. Two sales of heavy cast scrap for open-hearth use at $29, plus the commission, and freight differentials also are reported, and involved 1000 and 500 tons. Heavy cast scrap for the cupola is not in strong demand and is quoted at $32.50 to $33, as compared with the government price of $34. Heavy melting steel is in principal demand and is extremely scarce. Two sales of this grade in this district during the past week involved lots of 3000 and 1000 tons and came from the south and southeast, and were made at the fixed price of $29, together with the commission and freight differentials. Guaranteed low phosphorous scrap also is scarce and is in strong demand.

Using Permits Now

Buffalo, July 16.—The demand continues heavy for all classes of scrap with heavy melting steel becoming scarcer and scarcer. The shortage is acute in this grade, particularly in Pittsburgh and Youngstown districts, and this territory is being combed for any tonnages that might be available. Absolute promises of permits to ship at the allowed differentials in freight are being made to dealers. It is understood that some tonnages are being shipped from this territory to outside points under the permit system though local mills say they have not been consulted as to their stock accumulations and as to their need of the particular scrap in question. Conditions today are such that all available scrap produced in Buffalo territory is needed here. It is believed it is only a question of time when a check will be made on scrap production and an administrator appointed to distribute to consuming interests. Those interested here feel that the present evils could easily be abolished and long hauls eliminated by a distribution of scrap which would be designed to have the material utilized in the zone in which it is gathered.

Demand Best of Year

Cleveland, July 16.—Scrap iron and steel continues in greater demand than at any time this year. Consumers are authorizing dealers to buy up into several thousand tons, in some instances. Melting steel is in greatest demand, open-hearth interests being willing to take any tonnages offered. Shrapnel turnings and cast iron borings also are finding a ready market. Car service in some cases is good and in others delay is encountered. The B. & O. and Nickel Plate are open here while the New York Central, Pennsylvania and Erie are embargoed. Most users of scrap seem to be stocking as much as possible, and most orders are for delivery by Oct. 1. Dealers say they could sell any amount of scrap, and the grades that are the exception to this are by far in the minority.

Freights Harden Prices

Cincinnati, July 15.—Dealers are still somewhat perplexed over the advanced freight rates. In many instances losses will be sustained in delivering scrap at the government's prices to outside points. This condition has brought about a hardening of prices for local melters so that they will probably soon be level with the maximum allowed by the government's schedule. Any scrap shipped to other consuming centers is invariably invoiced at the maximum quotation. Yard stocks are neither increasing nor decreasing. For a time they decreased at a rapid rate but the movement of scrap both in and out of yards is about equal. No. 1 machine cast continues in good demand.

Buyers Now Rushing In

St. Louis, July 13.—Dealers report an excellent buying movement in all grades of scrap iron and steel. Consumers have held off about as long as they think safe, and now there is a simultaneous rush to obtain supplies. Prices are very strong and the tendency is upward. More grades are now commanding the government maximums than at any time

since the prices were fixed. Virtually all railroad materials are selling at the high mark permitted under the regulations and the carriers are offering very little, there being no lists before the market this week. The movement has been heavy but includes principally old tonnages long since contracted for. The country is producing only beggarly amounts, and until the harvest period is past, not much can be looked for from that source. Dealers are paying the increased rate recently made by the St. Louis Terminal railway, but under protest. Concerted efforts are being made by scrap interests and steel and iron interests to have the new rate set aside. The demand covers about everything in the list, but rolling mill grades are especially wanted. Heavy melting steel has been marked up 50 cents, and iron rails $1. Stove plate and light cast have advanced from $23 to $25.

Won't Pay Maximums

Birmingham, Ala., July 16.—Southern dealers in scrap iron and steel still are lamenting and say that the uncertainties cause them to turn to the thought of quitting business. The home consumers of scrap are not willing to pay the maximum prices fixed by the government. Heavy melting steel in Pittsburgh is selling at $29, delivered. The highest price offered by consumers in this territory is $26.50. The argument is being used that if the material is not marketed here it will have to go to Pittsburgh which would net the dealers only $22.50. The dealers say they cannot make any profit as the gatherers of scrap know the prices fixed by the government and want that much for their product. The stocks on hand in this territory are being reduced steadily.

To Make Shell Ingots

Pittsburgh, July 16.—Incorporated under the laws of West Virginia with a capital of $250,000, the Heyward Steel Co. has taken over the old plant of the National Steel Castings Co. at New Cumberland, W. Va., which consists of a steel foundry, 35 x 90 feet, and a 20-ton acid open hearth furnace. The new company has a government order for the production of cast steel shell ingots. Thomas R. Hayward Jr., of the Thomas R. Hayward Co., Farmer bank building, this city, dealer in alloys, etc., is president of the new organization; D. M. Fahnestock, president of the Fahnestock Mfg. Co., Avonmore, Pa., is vice president of the new company, and William M. Orr is vice president and sales manager.

Steel Allotted For Mills

Tin Plate and Sheet Mills Kept Going Only Through Committee's Efforts—Shell Steel Production Still Reduced

Youngstown, July 16.—Only through the aid of the committee on sheets in obtaining sheet bars for them, are sheet and tin plate mills in this district who buy their steel, now able to operate. The sheet bar scarcity is as acute as ever. A fair sized tonnage of sheet bars was recently placed with a barmaker here by the committee with orders to deliver them as soon as possible. The consumer is working on government orders and is in dire need of semifinished material. A few sheetmakers accumulated a fair supply of bars recently when their sheet mills were down for repairs. The new bar mills which were recently built in the upper part of the valley have been placed in operation. The tonnage of bars being made at this time is small partly because the mills just got going and partly because the power for operating the mills is said to be lacking. The power is bought from the city and as another steel company uses this source of supply, it is said that not enough current is generated to supply the needs of both makers. Makers of shell steel in this territory continue to be held up by the inability of the forges to take the tonnage produced. Shell steel production accordingly is on a reduced scale.

Wire Rods Allotted

Philadelphia, July 16.—An order for 2000 tons of wire rods for shipment to England has been allocated to an eastern mill. Semifinished steel conditions remain unchanged.

Supply Much Less Than Demand

Pittsburgh, July 16.—Demand for billets and sheet bars is considerably greater than the supply. No offerings are being made. Sheet producers have been especially active in trying to get better supplies of sheet bars, but without success. Some plate makers in the east also continue to seek in vain for tonnages of slabs in this district. Small lots of wire rods are being sold by makers to their regular customers.

Demand Fairly Active

Pittsburgh, July 16.—Direct and indirect government orders are taking the greater part of the output of cold rolled strip steel. Operations are restricted to about 70 per cent of capacity owing to a shortage of steel. The government price of this product is $6.50 per 100 pounds, Pittsburgh, terms 30 days, less 2 per cent for cash in 10 days. Where the rate does not exceed 31c per 100 pounds, freight is allowed. Fairly active demand exists for hot rolled strip steel.

Pipe Stocks

Now Being Replenished For Jobbers —Foundries Quote Uniform Price

Pittsburgh, July 16.—Iron and steel pipe manufacturers are replacing stocks of jobbers where tonnages shipped by the latter have applied on direct and indirect government orders and the withdrawals have been made within the previous month. This is in accordance with the ruling of the war industries board. Some jobbers had greatly reduced their stocks, however, and in view of the restriction carried in the war industries board ruling about confining replacements to withdrawals of the previous month are unable to build up their stocks to anything like a normal supply. Priority certificates are not being asked of jobbers, but records are required by makers showing the character of shipments which are to be replaced. Heavy demand continues to be made for lap and butt weld iron and steel pipe, the largest quantities of lap weld sizes going to oil country interests.

Foundries Quote Uniformly

New York, July 15.—Purchases by the government comprised the principal business in the cast iron pipe market during the past week. These government transactions involved only tonnages of moderate size for use at various cantonments and other government establishments. No public lettings are reported and private buying is quiet. Foundries are quoting uniformly $59.50, f.o.b. producing point.

Place Pipe For Bombs

Youngstown, O., July 16.—Orders for many thousand feet of pipe have been allotted by the government among the mills here. Specifications call for a light grade suitable for making gas bombs. The orders have been given the right of way through the mill so that the material may be exported to France as soon as possible. The pipe mills here are working largely on oil-well goods and unfilled orders are said to be unusually heavy.

Canvass Bar Mill Capacity

Government Getting Close Line on Position of Producers—Nut and Bolt Makers Will Quote Uniformly on Pittsburgh Base

Chicago, July 15.—Inquiries have been sent by the government steel representatives to all mills with a view to ascertaining their possible bar output and to outline possible facilities. A reallocation of government bar orders is to be made to permit greater rail production, but it is expected that this will be necessary only to a limited extent with no radical departure from the previous distribution of bar orders. Inquiry continues light. The scarcity of rails for rerolling has in some degree limited production of rerolled bars and knowledge of this condition forestalls some inquiry which might otherwise appear. Reinforcing bars are more active than would be apparent from building operations under way, but this is explained in a measure by prospective work of an urgent nature which must be handled.

Supply Only Essential Users

Pittsburgh, July 16.—Makers of steel bars are supplying consumers engaged in essential production only. Direct and indirect government orders are heavy and include those of implement manufacturers. The production of steel bars fluctuates considerably from time to time, rolling schedules being adjusted to the size and character of demands as to time of delivery. This plan has been adopted by some mills in order to divert as much steel as possible to other departments, such as plate mills, which are operating at capacity to take care of the most important requirements of the government. Makers of iron bars are operating heavily on government business, but direct and indirect orders are hardly great enough to call for all of their output.

Pittsburgh is Sole Basing Point

Pittsburgh, July 16.—By unanimous vote, the 52 members of the Bolt, Nut and Rivet institute who attended a special meeting here last Friday at the William Penn hotel made Pittsburgh the sole basing point for prices of their products. While levels have been fixed f.o.b. Pittsburgh, this policy was not being adhered to strictly and it was in order to make it uniform that the institute acted. The purpose of the institute was to encourage consumers to buy from the nearest plants, to save freight rates, to reduce transportation and to conserve time and labor and thus to meet the wishes of the government. It also is the intention of producers to get priority orders so that they can insure expeditious delivery of war requirements. The meeting was presided over by Secretary N. J. Clarke, of the Upson Nut Co., Cleveland. A committee was formed to confer with government representatives to make a war schedule for the manufacture of nuts, bolts, rivets and screws and is headed by President Charles J. Graham of the Graham Nut Co., Pittsburgh. Another committee was organized to co-ordinate all the manufacturers. Increased output and quicker delivery is expected to result from plans made at the meeting. The government is taking about 90 per cent of the production of the manufacturers through direct and indirect government orders.

Bolt Demand Active

Chicago, July 15.—An active demand is apparent for nuts and bolts from a wide range of sources. Carbuilders are calling for an increasing number of standards, and other industrial sources are supplying a heavy inquiry. Interest is expressed in the announcement last week that nuts and bolts, following bars will take the Pittsburgh price. This condition was announced by the government some time ago, but was not appreciated by the industry until the meeting at Pittsburgh last week.

Mills Are Kept Busy

Pittsburgh, July 16.—Makers of hoops and bands are kept busy on contracts and new business, although owing to the shortage of steel are unable to operate at capacity. Demand from oil and rosin barrel interests for hoop steel continues to be heavy. The demand for bands, while fair, is not so great as that for hoops.

Large Shafting in Demand

Pittsburgh, July 16.—Makers of cold rolled shafting are engaged almost altogether on direct and indirect government orders. Demand is being made principally for the larger sizes, which are being turned out at a high rate. Capacity for making the smaller sizes is not entirely taken up and fair-sized tonnages could be sold for regular domestic consumption if there were any available steel for rolling. The automobile trade is buying lightly, while screw stock makers are taking somewhat larger tonnages. Sales are made strictly at the government prices of 17 per cent off in car lots and 12 per cent off in less than car lots, f.o.b. Pittsburgh.

Favorable Output

Shown In Tin Plate Due to Weather —Steel Supplies Adequate

Pittsburgh, July 16.—Cool weather has been favorable to heavy operations of tin plate mills and the output is satisfactory. In June, the production exceeded 3,000,000 base boxes, as compared with about 3,250,000 base boxes in May. This is an excellent showing when it is recalled that the turns in June were reduced by reason of the fact that there were five Saturdays and Sundays in that month as compared with four Saturdays and Sundays in May. The turns in June perhaps averaged about 65 as against three or four more in the preceding month. The government and the trade will be satisfied if the output during the current quarter is 9,000,000 base boxes and from present indications it will exceed that amount. For the second quarter the production was approximately 9,300,000 base boxes and for the first half about 17,000,000 base boxes. The industry is meeting the heavy demands being made upon it and its production for the year probably will be 36,000,000 base boxes or more. Except for isolated cases tin plate mills are getting adequate supplies of sheet bars and transportation facilities are ample to meet all requirements. Stocks in warehouses are reported to be about normal or equal to approximately one week's production. Operations are estimated at between 90 and 95 per cent of capacity.

Test in Ferro

Application For Further Imports to Disclose Policy—Market Quiet

New York, July 15.—The war trade board's policy with regard to permitting the importation of further ferromanganese from England, promises to be clearly defined as a result of an application which has been filed during the past week for permission to bring in 650 tons of this metal. The British government has granted a license for exporting this tonnage, so that the only step required is the granting of an import permit to the agent here. It is not at all assured that favorable action will be taken, since the war trade board previously has stated that it would grant per-

mits for bringing in English ferromanganese only when imports of manganese ore from Brazil fall below the agreed figure of 35,000 tons monthly.

In the meantime, portions of the 12,000 tons of English ferromanganese for which import permits were granted a couple of months ago are being received here, and some time will be required before this entire tonnage comes in.

Inquiry is Light

Pittsburgh, July 16.—Inquiries coming to makers of ferroalloys are extremely limited. Consumers apparently are well covered. Makers in this district of 16 per cent spiegeleisen so far are not taking any business for the first quarter. It is reported that a Chicago consumer has taken 500 tons of this grade for the delivery named at $75, furnace, which is quoted also for spot and last half. Small lots of 70 per cent ferromanganese are being sold for prompt shipment at $250, delivered. A limited tonnage of 50 per cent ferrosilicon at $165, furnace, for second half delivery, is reported. The market for this alloy, however, is quoted generally at $160 to $165, Pittsburgh, for early shipment.

More Nails

Asked By War Department—Jobbers Complain Over Tonnage

Pittsburgh, July 16.—The war department is asking for 30,000 kegs of nails which will be placed soon. Demand for nails is fair. Jobbers are being supplied without submitting priority certificates. Some of them complain that they are unable to replace anything like their normal stocks of wire and wire products by reason of the ruling of the war industries board that replacements of shipments made in connection with direct and indirect government orders are confined to those made during the previous month. Wire mills are operating at about 65 per cent of capacity. Production has been cut owing to the shortage of steel and some manufacturers are using great quantities of discards in cases representing 40 per cent of their output.

Deliveries of fluorspar have fallen considerably behind and consumers are having greater difficulty in getting supplies. Furthermore there is a lively new demand, much of which is going unsatisfied. The market is strong with gravel spar quoted at $30, mines.

Plate Output Increases

Production in Chicago District This Month Will Exceed June—Fleet Orders Still Absorb Most of Tonnage

Chicago, July 16.—Ship plates continue to supply the bulk of the tonnage going through the mills at the present time, though sufficient interval is found to supply the requirements of the carbuilders. Production is the leading factor. Although mills during the present month are showing a gain over last month, the new business coming on the books is more than keeping pace with the output. No finished plates are available except on government order. Fuel scarcity constitutes an ever-present menace to blast furnace operation, although under conditions at present which obviously should be ideal, no actual hampering of output is evident. Future supply is rather doubtful.

Fleet Orders Placed

New York, July 16.—New plate orders placed with eastern mills during the week have been of good size and have been principally for the Emergency Fleet corporation. In most cases the tonnage put upon mill books has amounted to considerably more than a week's production. Output of the mills at present has been recently restricted by the effects of the July 4 holiday and other causes.

Offering Flanged Steel

Cleveland, July 16.—Certain eastern plate mills now are able to offer comparatively good deliveries in flanged steel. Ordinary plates however remain practically unobtainable. An order for several hundred tons of floor plates for lake boats building for the Emergency Fleet corporation, was placed in the week.

Sheet Operations Uniform

Method of Allocating Sheet Bars to Various Mills Produces More Stable Production—75 Per Cent Not Yet Attained

Pittsburgh, July 16.—Operations of sheet mills are being adjusted to a more uniform basis as a result of the request of J. Leonard Replogle, director of steel supply, that they do not exceed 75 per cent of capacity. This has been brought about by the system of allocating tonnages of sheet bars which is being done voluntarily by makers. This calls for a diversion of a portion of their output which had been going to their own or to the sheet mills of other manufacturers which have been operating at more than 75 per cent to mills which have been producing at a lower rate. This new arrangement, however, will not bring the operations of the entire sheet industry up to 75 per cent, but they will be more uniform and perhaps average between 65 and 70 per cent. Large orders for sheets have been placed by the government during the past week.

Operations Still Reduced

Youngstown, O., July 16.—Sheet mills continue to operate at reduced capacity. Makers were asked by the government some time ago to hold their production at 75 per cent and so far as is known, this request is being followed closely by all valley mills. A few sheets are being distributed among the domestic trade, but fully 85 per cent of the sheets made here are going either direct or indirect for war purposes. No large orders have come out from the government recently, although from time to time small tonnages are distributed freely. All sheets bought by the government are being made from low-carbon sheet bars.

Replacing Sheet Stocks

Chicago, July 15.—Jobbers of sheets are making inquiries which indicate a misunderstanding of the government's position on the matter of replacement of stock distributed for essential purposes. The point concerning the date upon which this material was sold from stock constitutes the question upon which jobbers seem not to be clear. It is held by the mills that only that stock may be replaced under priority which was used for prime war purposes during the month of June. Explanation of the priority ruling which was quoted in the July 11 issue of THE IRON TRADE REVIEW is quoted by the mills to explain the situation to the jobbers.

Structural Lettings Grow

Eastern District Reports Heaviest Tonnage Placed in Months—Brooklyn Army Piers Awarded—War Work Still Monopolizes Market

New York, July 15.—Structural lettings in this district increased in number during the past week and the tonnage involved was greater than in any similar period in months. Contracts let total in excess of 16,000 tons, and new work which has come up calls for more than 3000 tons. Of the business placed, about 9000 tons are comprised of the requirements for three piers for the army supply base at South Brooklyn, and 2000 tons are for a magazine storage building at Edgewood, Md. The remainder of the work let includes principally bridges for a number of railroads, and a locomotive repair shop for the Rutland railroad. The most important new job pending is a picric acid plant for the government at Brunswick, Ga., for which 1000 tons will be required.

Only War Work In Boston

Boston, July 15.—Pressure for shipments of steel is as strong as ever, but the trade is obliged to sit quiet and wait developments. It is surprising the amount of steel required for government war work. There is absolutely no steel construction in Boston except that which relates to essential war work. The great $15,000,000 quartermaster's plant at South Boston is progressing rapidly. All of the steel for these buildings were ordered through Washington, and much of the progress made in the last few weeks has been due to the speedy deliveries. The job is several weeks ahead of schedule and it is said that even better work would have been possible had not the rainy weather of the last 10 days interfered.

Large Orders Being Placed

Pittsburgh, July 16.—Direct and indirect government requirements being placed with fabricators are heavy and no other business is being accepted. Heavy tonnages are involved in demands of the Emergency Fleet corporation, the war department, which is taking tonnages for buildings of various character, and machine tool makers, who are erecting extensions to their plants.

Allotments Are Larger

Philadelphia, July 16.—Eastern shape mills received much larger allotments of tonnage for various essential requirements during the past week than in the preceding weeks. Government work continues to monopolize the market and there are no developments in the way of business of a general commercial character. The Baldwin Locomotive Works contemplates building a large plant in the Chicago district on a site it purchased several years ago. Preliminary inquiries for the steel have been made and early action is expected.

War Structures Take Precedence

Chicago, July 15.—Building activity is at a standstill owing to the hampering effects of financing, transportation and the ever-present realization of material shortage. Those structures which are undertaken are unmistakably for prime war purposes, and they constitute only a portion of the building operations which are needed and would be undertaken in normal times. The Symington interests are proceeding with their contracts for the various buildings required for the new munitions plant in Chicago. The government has awarded the new naval air stations at San Diego, Cal.

CONTRACTS AWARDED

Ordnance shop for Wisconsin Gun Co., Milwaukee, 150 tons to Worden-Allen Co.

Forge shop and tool room for the Symington Chicago Corp., Chicago, 452 tons, to the Duffin Iron Works.

Naval air station buildings for the United States government at San Diego, Cal., 365 tons, to the American Bridge Co.

Extension to freight car repair shop for the Lake Shore & Michigan Central railway, Chicago, 145 tons, to Vierling Steel Co.

Gantry cranes for the American Ship Building Co., Cleveland, O., 129 tons, to independent shops.

Magazine storage building at Edgewood, Md., 2000 to McClintic-Marshall Co.

Locomotive repair shop for Rutland railroad, Rutland, Vt., 300 tons to Harris Structural Steel Co.

Bridges for Virginian railway, 270 tons to Virginia Bridge & Iron Co.

Bridge at Easton, Pa., for Central railroad of New Jersey, 2800 tons to Phoenix Bridge Company.

Bridges for Central railroad of New Jersey, 100 tons to Hay Foundry & Iron Works.

Locomotive repair shops for Baltimore & Ohio railroad at Cumberland, Md., to independent fabricator.

Two piers at South Brooklyn army supply base, 6000 tons to American Bridge Co., one pier, 3000 tons, to Levering & Garrigues Co.

Bridge for Central railroad of New Jersey at Highbridge, N. J., 150 tons to Bethlehem Steel Bridge Corp.

Boiler shop for American Locomotive Co., Dunkirk, N. Y., 250 tons for the Lackawanna Bridge Co., Buffalo.

Mill and elevator for Buffalo Cereal Co., Buffalo, 250 tons of reinforcing bars for the Corrugated Bar Co.

Building for General Chemical Co., Baltimore, 350 tons to Eastern Steel Co.

CONTRACTS PENDING

Extension to foundry of Strong Steel Foundry Co., Buffalo, 200 to 300 tons, bids being taken.

Bridge repairs at Buffalo for Pennsylvania railroad, 700 tons, bids being taken.

Toluol plant at New Haven, Conn., for ordnance department. Preliminary plans being drafted.

Bridges for Pennsylvania railroad, 300 tons, bids being taken.

Building for Vermont Milk Chocolate Co., Burlington, Vt., 450 tons, project abandoned.

Bridge extension at 149 street, New York, for New York Central railroad, 700 tons, bids being taken.

Bridges for Chesapeake & Ohio railroad, 650 tons, project abandoned.

Building at Brooklyn navy yard, 250 tons, bids being taken.

Powder factory at Indian Head, Md., 225 tons, bids being taken.

Derrick towers for Staten Island Shipbuilding Co., 500 tons, bids being taken.

Picric acid plant for government at Brunswick, Ga., 1000 tons, bids being taken.

Huge Car Orders

Are in Contemplation by Government —Rail Bookings Large

Philadelphia, July 16.—Large additional orders for freight cars which are in contemplation by the government, as previously stated, it now is reported will total 400,000. It is stated by those who are well informed on this matter that the intention is to place these orders over an extended period in the amount of 100,000 cars at each time.

The French government is inquiring for a large tonnage of rails of various sections.

Expect Orders Soon

Pittsburgh, July 16.—Requirements for rails are expected to be placed soon by the railroad administration, but makers here have no definite knowledge as to what tonnages they will be asked to produce. The administration now has in its hands data showing the unfilled orders of mills as well as information regarding their producing capacity. Estimates have been made that the orders will call for 1,500,000 to 2,000,000 tons of rails. Mills in this district are committed far into next year on some rail orders, and others are making large rounds and sheet bars. It has been understood that production of shell steel would be curtailed temporarily to take care of the government rail orders. Report has it that the Emergency Fleet corporation is starting an inquiry for 4000 tons of rails. Demand for light sections is moderate. Practically no inquiry is out for standard spikes.

New Price Announcement Put Out

General Institute Committee Revises Schedules on Certain Grades of Scrap and Wire Nails and Establishes New Prices for Horseshoes, Calks, etc.— Only Domestic Ferro and Spiegel Contracts to be Modified

SOME further revision and amplification of existing fixed schedules of base prices, differentials and extras have been announced by the committee on steel and steel products of the American Iron and Steel institute through Chairman Gary, under date of July 16. The announcement modifies in some degree the schedules on low phosphorus steel scrap, cast iron scrap and wire nails, and announces prices on horse and mule shoes, calks and malleable castings for freight cars. The official statement is as follows:

Referring to previous statements of the chairman of the committee on steel and steel products of the American Iron and Steel institute recommending prices for certain steel products to be adopted as maximum prices, to take effect immediately, to apply to the requirements of the United States government, to the war requirements of the allies and for domestic consumption within the United States, the committee now makes similar recommendation in respect to the prices and differentials below stated:

SCRAP

Substitute the following for the corresponding paragraphs in the recommendations of Feb. 21, 1918, as shown on pages 14a, 14b, and 14c of the institute pamphlet of January, 1918. (Pages 20-22 of revised Iron Trade Review booklet.)

NO. 2 LOW PHOSPHORUS STEEL

(c) Steel knuckles and couplers, rolled steel wheels, railway steel springs, carbon tool steel and similar material in quality and character which will analyze 0.06 and under in phosphorus and sulphur, may be dealt in for use in such plants at a differential of not exceeding $5 per gross ton above the base price of heavy melting steel...Maximum, $34.

No. 3. Steel rails 3 feet and under, steel splice bars and steel rails, structural steel or similar scrap which has been especially sheared to short lengths for use in cupolas, hand-charging furnaces or for rerolling purposes, may be dealt in at a differential of not exceeding $5 above the base price of heavy melting steel.....Maximum, $34.

No. 8. Cast Iron Scrap

(a) All cast iron scrap, whether broken or unbroken, including cast iron car wheels, may be dealt in at a maximum price of not exceeding that of heavy melting steel, except as noted in Clause B.....Maximum, $29.

Note.—Burnt iron, burnt grate bars, stove plate, brake shoes, soil pipe, and all other inferior grades of cast scrap may not be dealt in at any price in excess of the maximum price of heavy melting steel.

(b) Strictly No. 1 cast iron scrap in cupola shape, in pieces not exceeding 150 pounds, when suitable for and to be used only in cupolas or in puddling furnaces, may be dealt in at a differential of not exceeding $5 per ton over the maximum price of heavy melting steel .....Maximum, $34.

WIRE NAILS

Referring to the announcement of Nov. 13, 1917, page 61 of the institute pamphlet of January, 1918, cancel the following: (Page 46 of revised Iron Trade Review booklet).

Base price 20d to 60d common, f.o.b. Pittsburgh, per 100 pounds, $3.50.

And in place therefore insert the following:

Base price 20d to 60d common, f.o.b. Pittsburgh, per 100 pounds, in carload lots, $3.50.

For less than carload lots, add per 100 pounds, $0.05.

HORSE AND MULE SHOES

Extra swaged, extra light, light, medium, heavy, long heel, short heel, city pattern and snow shoes, also mule shoes No. 2 and larger, per 100 pounds, base, f.o.b., Pittsburgh, $5.75.

Subject to the following list of extras (in cents per pound, to be added to the base price per pound.)

Extras for Sizes and Quality:

Horse shoes, sizes No. 1 and smaller...	.25c
Mule shoes, No. 1.....	.25c
Mule shoes, No. 00 and 0.....	1.50c
Light driving horse shoes, No. 2 and larger	1.00c
Countersunk No. 2 and larger.....	1.00c
Countersunk No. 1 and smaller.....	1.25c

Extra for Assorting

All assorted kegs, other than fronts and hinds of the same size.....	.15c

CALKS

Prices per 100 pounds, f.o.b., Pittsburgh.

	A	B	C
Toe calks—blunt, medium flat and square pattern.	$5.50	$5.75	$5.90
Toe calks, sharp pattern..	6.00	6.25	6.40
Heel calks, blunt and medium pattern	6.00	6.25	6.40
Heel calks, sharp pattern.	6.50	6.75	6.90

A—200 ton lots and over.

B—Less than 200 tons to carloads inclusive.

C—Less than carloads.

The prices on malleable castings for freight cars which were approved by the war industries board, May 15, also are announced by Judge Gary. These prices previously were published in THE IRON TRADE REVIEW May 23 and appear on page 62 of its revised booklet. The footnotes, however, have been modified somewhat and these as now given are as follows:

On miscellaneous requisitions above prices are f.o.b., foundry.

On car orders, above prices are—delivered reasonable destination for lots of 200 cars or over.

Any pattern equipment necessary to be furnished by or at the expense of customer unless tonnage involved will warrant absorption of this expense.

Any castings of intricate design or necessarily of very light section will be subject to special negotiation.

Judge Gary, in a further statement regarding ferromanganese and spiegeleisen, explains that the fulfillment of contracts as modified by the adopted changes in the standards of these metals shall apply to domestic production only. Foreign contracts are to be filled in accordance with the terms of the contract.

The official statement is as follows:

"In a statement issued by me under date of May 16, 1918, the committee on steel and steel products recommended to the trade that a manganese content of 70 per cent for ferromanganese and 16 per cent for spiegeleisen be adopted as standard, and that deliveries of material of the new recommended standard be accepted as good deliveries on existing contracts, with proper adjustment of tonnage and price.

"In order to avoid possible misunderstanding the committee now desires to make it clear that its recommendation that deliveries of material of the new recommended standard be accepted as good deliveries on existing contracts was intended to refer to existing contracts for ferromanganese or spiegel of domestic manufacture only, and that the committee is of the opinion that contracts for foreign ferromanganese or spiegeleisen in effect on May 16, 1918, should be filled in accordance with the terms of the contract and current customs of the trade at the time the contracts were entered into.

"The committee recommends that importers and dealers in foreign ferromanganese and spiegel and purchasers thereof be governed accordingly."

Production Loss Due to Holiday of Fourth

New York, July 16.—Effects of the Fourth of July holiday on production is reflected by mill shipment figures for the week ending July 6. The total shipment of rolled shell steel for the week by all mills were 71,337 tons or approximately 50 per cent of the 140,000 tons which has been considered as representing the total capacity. Plate shipments of the week were 73,037 tons, or almost 75 per cent of the approximately 98,000 tons of total capacity. In considering these percentages it is pointed out that at no time has the 100 per cent production been reached.

Follow Labor Rules Or Get No Steel

War Industries Board Adopts Position Which Compels Employers to Observe Government's System of Supplying Man Power to Plants—Calls Upon Various Departments to Make No Changes in Labor Standards

WASHINGTON, July 16.—Manufacturers who fail to conform to the labor program of the government will be refused priority assistance in obtaining raw materials. The war industries board, in resolutions adopted last week, is on record to this effect. This action raises a club over the heads of such employers who are unwilling to accept the national principles to be laid down by the war labor policies board. The course likely will be received with much disfavor throughout industry generally but manufacturers who decline to meet the requirements possibly will find no other way out.

That the various departments of the government will follow this lead is almost a positive conclusion, as the labor policies board represents the contracting bureaus. The policies board last week called upon these departments to refrain from making any changes in standards of wages, hours and conditions until the board has determined a definite standardization policy. With the departments lined up with the industries and policies boards, manufacturers can do little else but accept the new program, whether engaged in war or nonwar production.

Disapproves Peace-Time Methods

The action of the war industries board is shown in these resolutions:

"Be it resolved by the war industries board:

"First: That the practice of manufacturers using competitive peace-time methods in the procurement of labor, resulting in withdrawal of labor from war industries, is strongly disapproved, and henceforth this board, through its priorities division will in proper cases withhold priority assistance from employers who persist in pursuing such methods.

"Second: That a copy of this resolution be certified to the chairman of the war labor policies board and to all other governmental agencies employing or dealing with labor and that it be given general publicity."

The labor policies resolutions were as follows:

"Whereas, the war labor policies board was appointed to establish harmony in those industrial matters on which the governmental departments were agreed that there should be unity of action, and

"Whereas, the war labor policies board has now under advisement methods of standardizing wages, hours and conditions of labor in establishments engaged on war work and is now with that dispatch compatible with the importance of the interests involved conferring on war labor policies with representatives of organized labor, of industrial management and governmental departments, and other agencies.

"Therefore, be it resolved, that the war labor policies board urgently requests the departments and boards represented to refrain from making changes in present standards pending the standardization now under consideration."

Housing Corporation Created

While these two significant actions stand out among last week's labor developments, another of importance to overcrowded industrial centers is the creation of the United States Housing Corp., which will, in a large measure, take over the functions that are now being performed by the bureau of industrial housing and transportation. It is expected that this new body will afford more facility in operation than would be possible under the usual governmental agency.

A charter was granted under the laws of New York state and the articles of incorporation provide for the issuance of 1000 shares of stock without par value, which is held on behalf of the government by Secretary of Labor Wilson, who is credited with 998 shares, and Otto M. Eidlitz and George G. Box, with one share each. The officers of the corporation are: President, Otto M. Eidlitz; vice president, Joseph D. Leland; treasurer, George G. Box; secretary, Burt L. Fenner, who in conjunction with Albert B. Kerr, John W. Alvord and William E. Shannon, serve as directors.

New Mill in Operation

The Cambria Steel Co. last week placed its new 134-inch No. 2 sheared plate mill at its Franklin works in operation. This mill is a duplicate of and adjacent to 134-inch mill No. 1, which began making plates some time ago, and when rolling at capacity will be capable of turning out approximately 18,000 a month. Construction of the No. 2 mill was begun about nine months ago. Delays were encountered in getting material and equipment, but when pressing needs began to come from the government, the company took steps to complete the unit and get it in operation. Machinery was installed and the first plates were turned out before the buildings were finished. Steel for the two sheared plate mills is secured, while hot, from the slab mills. Plates up to 10 feet 6 inches in width and 40 to 50 feet in length are rolled for ships for the Emergency Fleet corporation. George W. Hatcher is general foreman of the two sheared plate mills and E. W Clarke is superintendent of the Franklin open-hearth department in which the mills are located.

$1,000,000 Shell Order is Placed in Canada

Buffalo, July 16.—The United States government has placed orders for $1,000,000 worth of shells of various diameters, fuse parts and adapters with six munition plants in Canada. All material is to be supplied by the United States and is now being allotted by the war industries board. Among the plants which have been mentioned as likely to receive contracts are the Manitoba Bridge & Iron Works, the Dominion Bridge Co., and the Vulcan Iron Works. The contracts which were negotiated with these concerns called for an expenditure of $500,000.

Sloss-Sheffield Planning 120 By-Product Ovens

Birmingham, Ala., July 15.—J. W. McQueen, president of the Sloss-Sheffield Steel & Iron Co., has announced that the company will build at once 120 Semet-Solvay by-product coke ovens in the Birmingham district, probably at North Birmingham. The government will take the by-products, the company to use the coke. More than $5,000,000 will be spent in the development and the plant will be completed within a year. With labor arriving in the district, the Tennessee Coal, Iron & Railroad Co. is finally making some progress with its addition of 154 ovens to the Koppers by-product ovens at Fairfield.

Iron Trade Review Price Booklet is Highly Praised by Leaders

"WELL done," is the verdict passed by the iron and steel and nonferrous industries upon the collection of revised government base prices, differentials and extras, in booklet form recently placed at their service by THE IRON TRADE REVIEW.

Universal commendation of the enterprise and speed of THE IRON TRADE REVIEW in bringing this badly-needed guide to their daily business, has been expressed by the leaders of these respective industries. This praise, unstinted and generous, has been directed not only upon the completeness of the data and the original features of the new booklet but more specifically upon its general style and arrangement, which for quick and convenient reference, has given it a practical value and distinctiveness peculiar to itself.

Apparently the common opinion is that the new booklet sets a standard all its own which has not been equalled by any similar publication previously issued.

Many of the kind remarks passed upon the new publication deal with the speed by which it has been placed in the hands of those to whom it will render an indispensible service.

Six months ago THE IRON TRADE REVIEW was the first publication to issue in correlated and compact form the complete government fixed schedules as they had been established up to Jan. 1. The practical appraisal of this piece of enterprise has been given by the thousands upon thousands of these booklets which were distributed on order into every quarter of the iron, steel and metal industries, where they have been performing an invaluable function both in behalf of the government and of the American Iron and Steel institute.

Speed then in disseminating these data in the channels of daily business was considered of essential importance. This has been no less true today because the many revisions and amplifications of various schedules since Jan. 1 have tended to neutralize all previous publications of this character.

Here are some of the complimentary opinions of the new booklet which have been given by leaders of the metal industries:

"I wish to compliment you on the thoroughness with which you have gone into this matter. From what little examination I have made of the book, it seems to be very complete in every respect; it is printed on good paper, the type is clear, and it contains a lot of information which should be very valuable to anyone at all interested in the iron and steel business or a subsidiary line."—J. A. Campbell, president Youngstown Sheet & Tube Co., Youngstown, O.

"It is gotten up in a very attractive shape. I congratulate you in compiling such an important pamphlet."—H. G. Dalton, chairman Pig Iron, Iron Ore & Lake Transportation subcommittee of the American Iron and Steel institute, Cleveland.

"THE IRON TRADE REVIEW has a right to feel proud of the booklet."—C. D. Dyer, W. P. Snyder & Co., Pittsburgh.

"The little issue is a most attractive one and will, no doubt, be found most useful."—E. W. Pargny, president American Sheet & Tin Plate Co.

"You are to be congratulated in preparing this copy on such short notice, and in such convenient and complete form. It is something which will make a very handy reference, and is needed badly by the trade."—J. C. Jones, president and manager, Cleveland Steel Co., Cleveland.

"I certainly congratulate you on this splendid compilation which is very complete and creditable."—W. S. Horner, executive committee, National Association of Sheet & Tin Plate Manufacturers, Pittsburgh.

"The data as compiled is very complete and convenient for reference and reflects credit on your statistician."—John A. Topping, chairman Republic Iron & Steel Co., New York.

"You deserve hearty congratulations on the fine work done in getting out this booklet as it is very complete and satisfactory."—William T. Shepard, Rogers, Brown & Co., Buffalo.

"The booklet has been gotten up in very fine shape and we congratulate you."—C. A. Barnes, secretary, subcommittee on scrap, iron and steel of the American Iron and Steel institute.

"The booklet is in splendid shape and very easy of reference."—Wm. P. Palmer, president, American Steel & Wire Co., Worcester, Mass.

"The publication is a great convenience to me and in the aggregate must be a very large convenience to the trade."—William A. Rogers, Rogers, Brown & Co., Buffalo.

"You certainly have good reason to take pride in this publication."—S. J. Llewellyn, president, Interstate Iron & Steel Co., Chicago.

Some Kind Opinions

I THINK you have every reason to feel gratified by this publication, which supplies a need that ought to have been undertaken by the steel committee of the American Iron and Steel institute. —Willis L. King, vice president, Jones & Laughlin Steel Co., Pittsburgh.

I HAVE glanced over the booklet and hasten to congratulate you most cordially on its quality. There are few minor errors, largely of omission; on the other hand, you have used one or two features that we will consider for copying in the institute booklet now in press. —James T. McCleary, secretary, American Iron and Steel institute, New York.

YOU have good reason to be proud of this booklet replete with facts and figures; it is by far the best that has come to my notice. —Frank Baackes, vice president and general sales agent, American Steel & Wire Co., Chicago.

$20,000,000 Loaned

By Government for Financing Sparrows Point Plant Extensions

Washington, July 16.—Details with respect to the loan of $20,000,000 to the Bethlehem Steel Corp. by the war finance corporation for development of the Sparrows Point plant have been announced by the finance corporation. The loan is to provide for additional coke ovens, furnaces and plate mills, all to be completed within a year. The sum represents two-fifths of the entire issue authorized for the developments at Sparrows Point, the remaining $30,000,000 to be subscribed through a New York syndicate.

The finance corporation's statement in full follows:

"Upon the request of the director of steel supply of the war industries board, the war finance corporation, in order to assist in meeting urgent requirements of the country for steel and certain other war products, has agreed to make an advance to the Bethlehem Steel Corp. of $20,000,000. The proceeds of this advance will be used for the completion of certain contemplated extensions to the coke ovens, blast furnaces, plate mills, etc., at the Sparrows Point plant of the corporation.

"The war finance corporation will receive for this advance serial notes of from one to five-year maturities, part of the total authorized issue of $50,000,000. The remainder of this will be written by a syndicate to be formed by bankers for the Bethlehem Steel Corp. Notes will be ultimately secured by the bonds of the Bethlehem Steel Corp., of par value, equal to 140 per cent of the notes. These bonds in turn will be secured by direct mortgage upon the principal steel properties controlled by the Bethlehem Steel Corp., through subsidiaries and also indirectly through the pledge of securities upon other properties controlled by the corporation."

In announcing the loan the finance corporation let it be known few steel companies have applied for assistance although last week an official of the war industries board stated many steel companies had sought aid but the board had rejected nearly all applications. The latter, according to an official of the finance corporation, is said to have been misinformed.

Ingot Total Increased

An error of 46,516 tons of open hearth steel was made in the figures of ingot production for June representing 88.14 per cent of capacity as recently announced by the American Iron and Steel institute. The corrected total is 3,083,446 tons instead of 3,036,930 tons and the open hearth steel output as revised is 2,281,718 tons compared with 2,235,202 tons reported.

Steelmakers Will Again Confer at New York

New York, July 16.—Standard steel rail prices still are unsettled, and this matter will come up for consideration at another meeting of the general committee of the American Iron and Steel institute and the steel director and other representatives of the government, to be held in this city, Thursday.

So far as public announcements go, an earlier meeting of the institute committee and government representatives, held in the office of the Steel corporation in this city, Monday, did not result in any settled action. After adjournment, Judge Gary said that the meeting was for the purpose of arranging various details. Mr. Replogle stated that nothing of public interest had transpired and added, "We merely went over production figures and discussed various steps toward increased efficiency."

Plans are being made for the remodeling of the Zenith furnace at Duluth, Minn., owned by the Zenith Furnace Co.

The Non-Ferrous Metals

Copper Lead Spelter Tin

	*Copper	†Spot Straits, tin	‡Lead, New York basis	Spelter St. Louis basis	§Aluminum	Spot antimony
July 10	26.00	.....	8.05	8.55	33.00	13.12½
July 11	26.00	.....	8.05	8.55	33.00	13.12½
July 12	26.00	.....	8.05	8.50	33.00	13.12½
July 15	26.00	.....	8.05	8.50	33.00	13.12½
July 16	26.00	.....	8.05	8.50	33.00	13.12½

*Government fixed maximum price for prime lake, electrolytic and casting copper, in ingots, pigs, slabs, etc., less than carloads, 27.30c.
†No spot Straits tin offering.
‡Price agreed to by leading interest and independents.
§Government fixed price for 98 to 99 per cent ingot aluminum in 50-ton lots; lots 15 to 50 tons, 33.10c; one to 15 tons, 33.20c.

NEW YORK, July 16. — The metals traffic committee, comprised of representatives of leading smelters of copper, lead and spelter, met with the railroad administration at Washington last Thursday and made various representations relative to the present position of metal freight rates. For example, the rate on lead and spelter from East St. Louis to New York now is 35c per hundred as against a previous rate of 19c, an advance of nearly 100 per cent instead of 25 per cent as had been proposed. The railroad administration has not yet made known its decision as a result of the hearing. In the meantime producers of lead and spelter are selling their metal on an East St. Louis basis.

The advance in the price of copper from 23.50c to 26c, effective July 2, has caused some confusion to consumers, who as a result of an announcement May 23 that the 23.50c price would be continued until Aug. 15, had in some cases obligated themselves to contracts based on the lower price. The unexpected advance caused some of the leading consumers, including various copper wire manufacturers to hold a meeting at New York, following which protest was taken up to the war industries board. The board, however, is understood to have informed the consumers that the adjustment would be a matter of individual negotiation between producers and their customers. The price of copper in carloads will remain at 26c until Aug. 15, while in less than carloads the price will be 27.30c.

Producers of lead, including both the independents and the leading producer, continue to abide by their agreed maximum quotation of 8.05c, New York, and 7.75c, St. Louis. Differentials to the various consuming points have not yet been settled, owing to the confusion over the freight rate situation. The supply of lead continues inadequate to meet the demand.

Spelter prices have been somewhat easier, although the reaction following the continued advance has not been marked. Demand is light, but producers are holding at around 8.50c, East St. Louis basis, for all positions until today when some went as low as 8.45c.

The tin situation shows little change, excepting that Chinese supplies, which have been an important item in this market, owing to limited allotment of Straits tin and the uncertainties of the Banca situation, are being interfered with due to railroad troubles in China. The Hunan railroad will be out of operation for about a month, due to floods on the Western river. This road carries ore from the mines to the smelters at Hongkong, consequently there is no selling of Chinese tin for July-August shipment from the Far East. The price of such spot tin as can be picked up in this market is about $1 a pound. July shipment of Banca from the Orient is quoted at 93.50c.

The antimony market is dull, although there are signs of renewed government buying. Prices remain at 13.12½c to 13.25c, duty paid, New York.

How Crankcases For Sub Chaser Engines Are Made

BY H. COLE ESTEP

EVERY phase of our tremendous war preparations touches the foundry industry at some point. In the construction of submarine chasers, for instance, a large number of powerful, high-speed marine gasoline engines are required. Before these engines can be built, a heavy tonnage of fine gray iron castings for the crank cases, cylinders, pistons, flywheels, etc., must be produced. Most of these castings are being made in foundries that have had extensive experience on automobile work. The marine engine castings, however, are much larger and radically different in important particulars from those required for automobiles. In fact, foundrymen who have had experience with both classes of work believe that greater skill is demanded in making the marine engine castings.

One of the largest manufacturers of marine engines for submarine chasers, private yachts, power boats, etc., is the Van Blerck Motor Co., with works at Monroe, Mich., and offices at 30 Church street, New York City. This concern has turned a large amount of its foundry work over to the Campbell, Wyant & Cannon Foundry Co., Muskegon, Mich. The contract with the Campbell, Wyant & Cannon company includes the production of crankcases for 4, 6 and 8-cylinder high-speed engines, and some exceedingly interesting foundry problems have been solved in executing this work. Some idea of the intricacy of the castings may be gathered from the fact that there are 102 cores in the mold for a 6-cylinder crankcase. In addition, the steel pipes which distribute the oil to the bearings are arranged to form an integral part of the crankcase and great precautions are necessary to insure the proper fusion of the gray iron with the surface of the pipes, there being some 20 points of contact in each casting.

A finished casting for a 6-cylinder engine is shown in Fig. 2. The oil pipes are clearly shown at the right. At each bearing there is a cast iron tee, into the stem of which a small feed pipe leading directly to the bearing is cast. It will be noted that there are two main distribution pipes opposite the three after-bearings at the top.

Solid, carefully built wooden patterns are employed. The three patterns for the 4, 6 and 8-cylinder crankcases are shown in Fig. 7. These patterns form the upper halves of the crankshaft bearings and

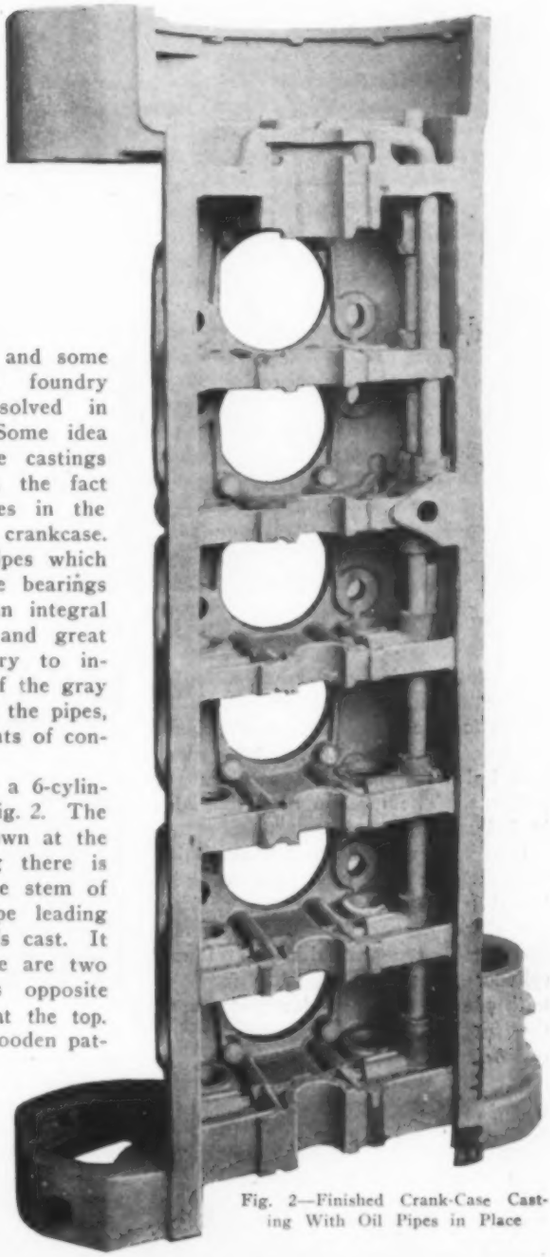

Fig. 2—Finished Crank-Case Casting With Oil Pipes in Place

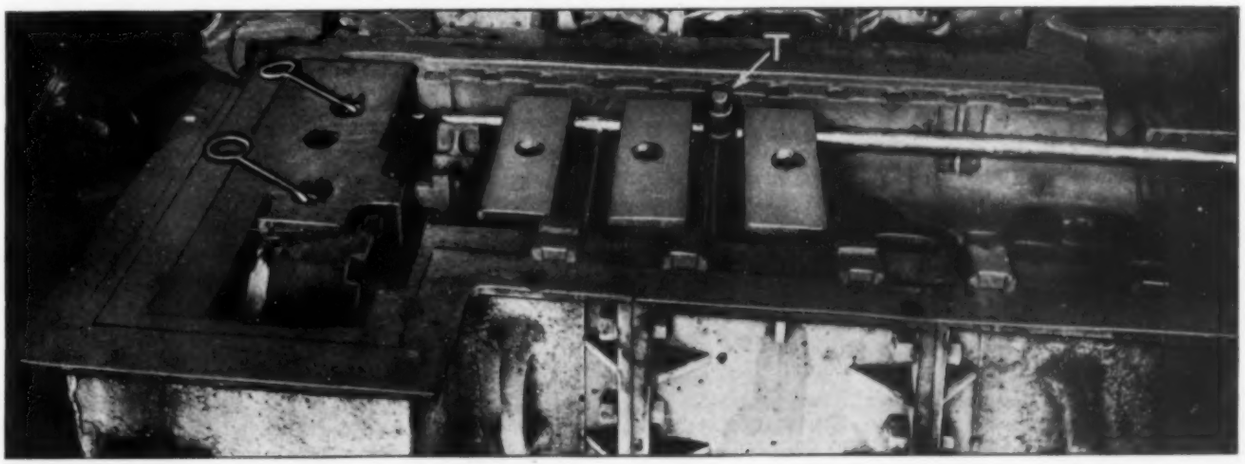

FIG. 1—AFTER THE CORES AND PIPES ARE FITTED THEY ARE RE-ASSEMBLED IN THE MOLD WHICH HAS BEEN PREVIOUSLY DRIED IN THE OVEN

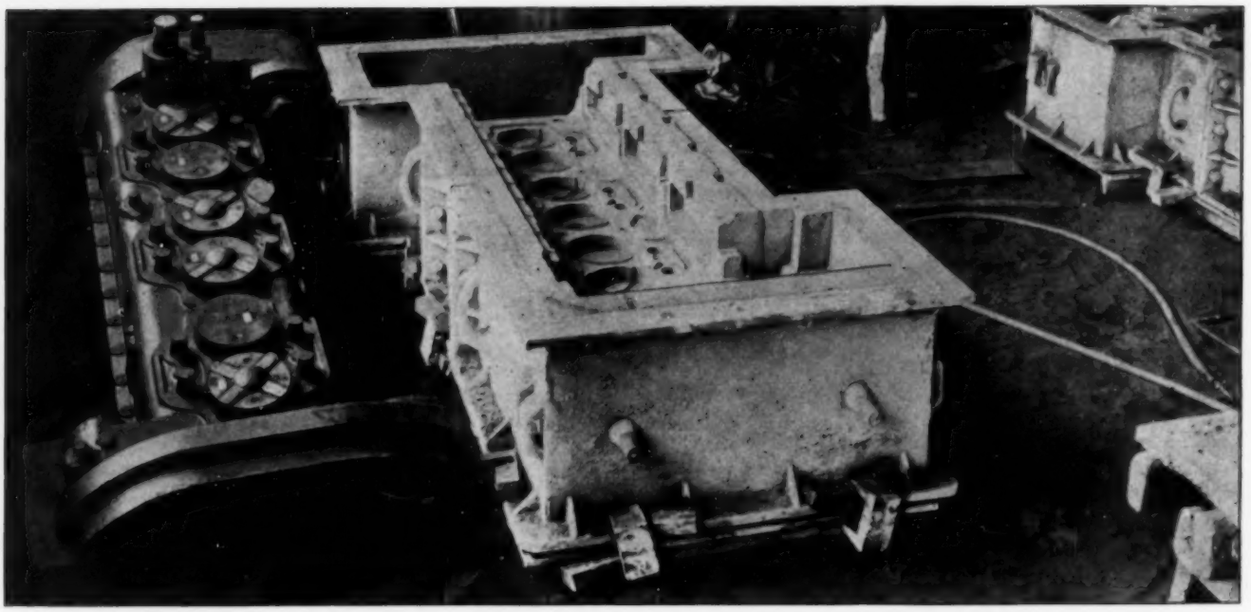

FIG. 3—THE MOLD IS RAMMED ON THE FLOOR FROM A SOLID PATTERN

the housings for the gears mounted on both ends of the engine. The prints for the cores forming the cylinder barrel openings and cylinder block bolt holes are clearly shown on the patterns. The method of gating also in indicated.

Drop gates with runners extending through the center of the cylinder barrel cores are employed. There are three runners for the 4-cylinder casting, on the first, third and fourth cylinders, respectively, with four on both the 6 and 8-cylinder castings, in the former case on the first, third, fourth and sixth cylinders, and in the latter, on the first, third, sixth and eighth cylinders. On the 8-cylinder crankcase each runner is connected to the casting by four gates, while on the two smaller crankcases, for 4 and 6-cylinder engines, only the end cylinders are provided with 4-point gates, the intermediate runners terminating in 2-point gates. These two types of gates are clearly shown at B, Fig. 7. The relative sizes of the three crankcases also are clearly indicated in this illustration. The 4-cylinder casting weighs 253 pounds after cleaning, the 6-cylinder casting, 324 pounds and the 8-cylinder crankcase 370 pounds.

FIG. 4—DETAILS OF THE POURING BASIN

The molds are made in specially designed cast iron flasks of irregular shape, as indicated in Fig. 3. The flask for the 6-cylinder casting is 5 feet 9 inches long over all. The middle section of the flask is 20 inches

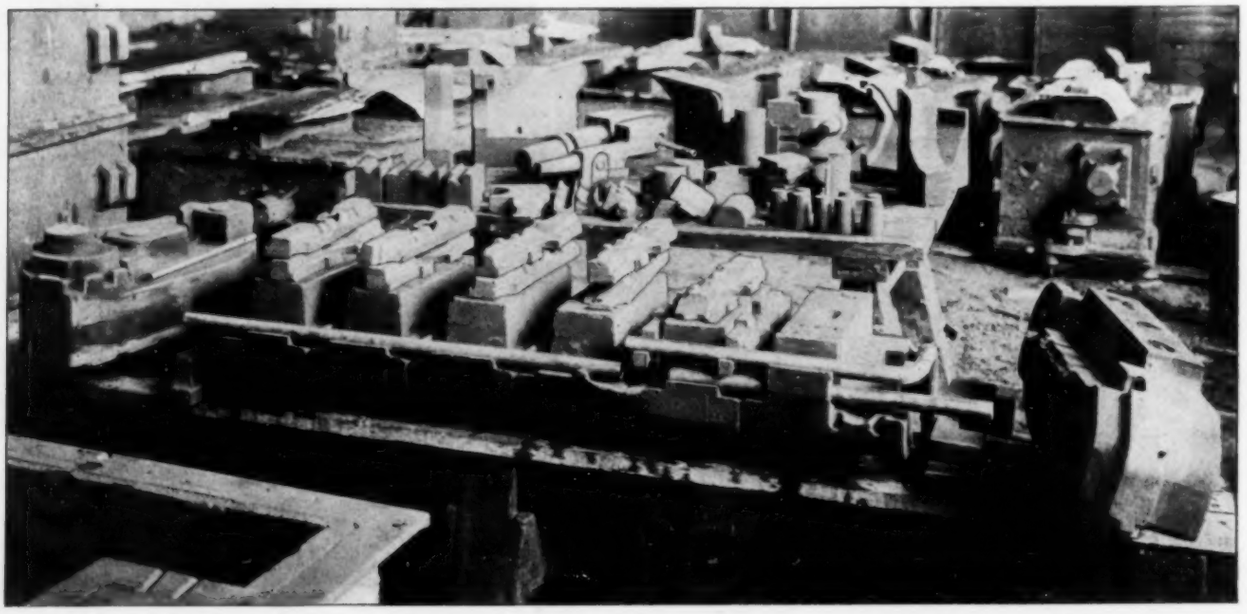

FIG. 5—THE CORES AND PIPES ARE CAREFULLY ASSEMBLED AND FITTED TOGETHER ON THE BENCH

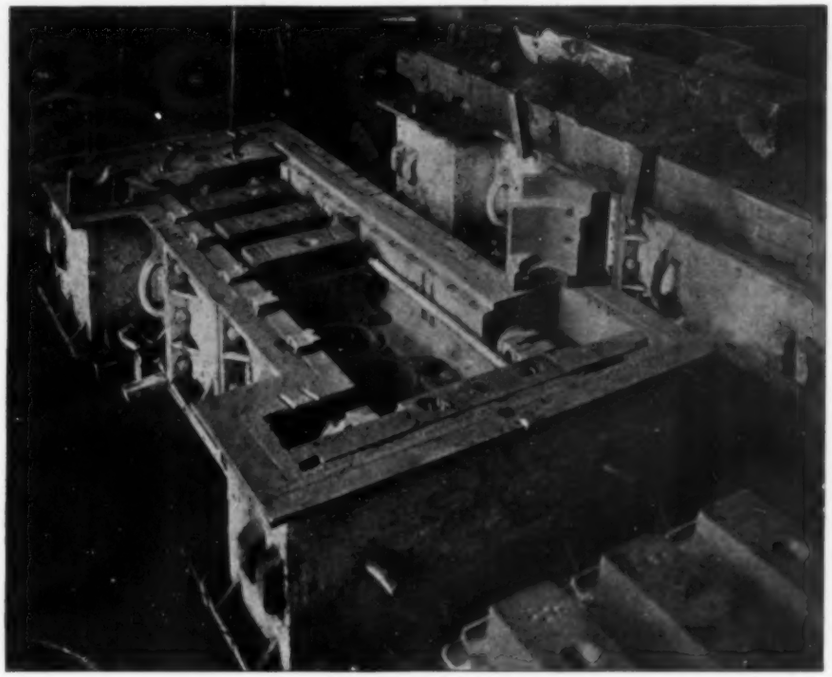

FIG. 6—DRAG WITH CORES PARTIALLY SET

wide inside. The section which forms the after or propeller end of the casting is 26 inches wide, the other end forming the camshaft gear housing being 34 inches wide. The flask in Fig. 3 is arranged with the propeller end of the casting in the foreground. The drag is 15½ inches deep. This flask is made in three sections which are bolted together, as indicated in Fig. 1. The middle section is 14 inches long. This construction makes it possible to use the same flask for the 4, 6 or 8-cylinder castings. For the smallest casting the center section of the flask is removed, the two irregular end sections being bolted directly together. One center section is employed for molding the 6-cylinder casting, another being added for the 8-cylinder job, making the flask in this case 6 feet 11 inches in length overall.

The cope shown in Fig. 4 is of plain wooden construction. It is 6 inches deep and is surmounted by a pouring basin arranged so the metal will enter all of the gates simultaneously. The cope is clamped to the drag with plain clamps and wedges in the usual manner.

Flasks are Rammed by Hand

The flasks are rammed on the floor by hand. Careful ramming supplemented by considerable hand tucking is necessary. Two men are employed on the job and two molds constitute a good day's work. This includes adjusting the pipes and fitting and setting all of the cores. No effort is made to hurry the work, stress being laid rather on the care and accuracy with which the castings are made. Thoroughly skilled molders of the type rarely found in modern foundries are employed. A cast iron bottomboard is provided and the drag is rolled over by means of a hand crane. The molds are all thoroughly ovendried before the cores are set. Fig. 3 shows the pattern and one of the finished drags for the 6-cylinder castings just before the mold is transferred to the drying oven to be thoroughly dried.

In the case of the 6-cylinder casting, there are 11 oil pipes in each mold. They are arranged as previously described and as illustrated in Fig. 1. Comparatively large pipes are employed in order to form an oil reservoir of ample size for the needs of the motor. The large distribution pipes are ¾-inch and the smaller bearing feed pipes ¼-inch; the larger pipes, therefore, are approximately 1 inch in outside diameter and the smaller pipes ½ inch. The pipes are fitted into the molds piece by piece, together with the cores. The cast iron tees which connect the distribution pipes to the individual feeds are formed of dry sand cores as indicated at *T*, Fig 1.

Cores and Pipes are Assembled

Before they are set in the mold the cores and pipes are completely assembled and properly fitted together on a low bench alongside the flask. This operation is clearly shown in Fig. 5, the large camshaft gear housing core being shown at the extreme right with the after gear housing core at the left. The cores forming the cross ribs of the casting and pipe connections are shown in a partially assembled state between the two main end cores. After the various cores and pipes have been satisfactorily fitted together on the bench, the assembly is dismounted and set up again in the mold. The latter operation is shown in Figs. 1 and 6. The distribution and feed pipes together with their connections are clearly visible in the drag which is shown in Fig. 6.

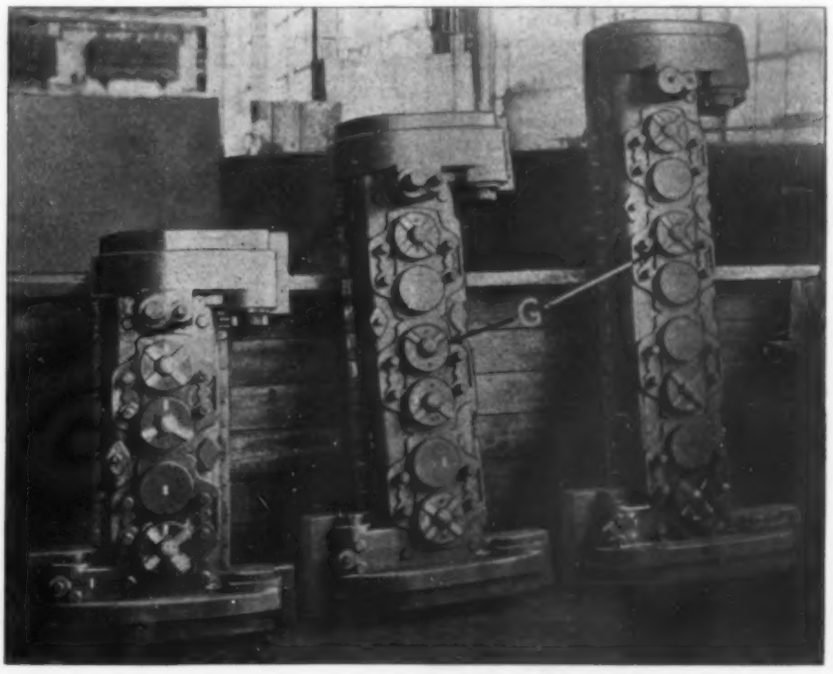

FIG. 7—PATTERNS FOR FOUR, SIX AND EIGHT-CYLINDER CASTINGS

Before they are assembled in the mold the pipes are carefully tinned and buffed in order to eliminate the oxide film which would form on the unprotected steel surface and prevent it from properly fusing with the hot iron. As an additional precaution, the pipes are painted with red lead which it is believed also acts as a flux at the points of junction. The success of the entire job hinges on the care with which the pipes are protected from oxidation by means of the tinning and red lead. Thoroughly welded joints are necessary, but there is absolutely no difficulty in obtaining results of this character if the precautions which have just been suggested are rigidly observed. In addition, the pipes are filled with loose, dry sand which is blown out after the casting is finished. The heavy cores in the ends of the flask are handled by means of eye bolts and hooks, as shown at the left in Fig. 1.

Absence of Risers

The construction of the pouring basin is clearly shown in Fig. 4. This basin connects directly with the several runners leading to the mold. An ample head of iron is maintained. There are no risers. The gas escapes through the relatively pourous sand and the vents in the cores. After the castings are shaken-out of the flasks they are carefully finished by chipping and sand-blasting.

The Campbell, Wyant & Cannon Foundry also casts the cylinders for the Van Blerck motor. They are cast in pairs and are molded in 3-part flasks. This feature of the work presents no unusual problems. At the present time the Campbell, Wyant & Cannon company, which is headed by D. J. Campbell, president, operates one of the largest foundries in the country, devoted exclusively to the production of castings for internal combustion engines. About 1400 men are employed. The plant has grown so extensively that it now occupies two plots of ground on opposite sides of the street which bounds the original site. One of the buildings is an irregular structure approximately 260 feet square. The other is 60 feet wide and 475 feet long with an ell 62 x 245 feet. This plant is now operating at full capacity, and the greater proportion of its output is for the government's purposes.

Converter Steel and U. S. Specifications

BY JOHN SONNENFELD

(A Letter to the Editor, The Iron Trade Review)

WHILE there are good reasons to believe that the electric furnace may be the future apparatus, the Messiah of the steel foundry, there are still reasons enough to recognize that the converter will stand the strains of forced production.

The present abnormal conditions seem to be largely responsible for increased introduction of electric furnaces. Will the electric furnace hold its place when the rush is over? Will it be the ideal apparatus?

It is not up to me to answer these questions and I am only trying to justify the *raison d'etre* of the converter as it is today.

There were many complaints from both converter and other steel foundries that they could not meet government specifications and a revision was urged. As a result of these complaints, a revision was granted by the government authorities. Personally I appreciate this revision as it certainly will help the manufacturer of steel castings, while on the other hand it will not interfere with the quality; but that does not necessarily mean that the converter is not able to meet the former specifications. In fact, we are making both army and navy castings in quantities and have never had trouble in meeting and exceeding former specifications, as some of our many test certificates will show.

An average of a great number of tests made for both the army and navy show clearly that the results are well above specifications. I admit that the regular run of steel does not show the same favorable properties and that special care has to be taken in order to get these results, but the same applies to steel castings made by any other than the converter process.

When is a Converter Successfully Operated?

It is true that some converter plants do not live up to expectations, but this cannot be adopted as a general rule, as there is, on the other hand, a great majority which is successful in every respect. This applies also to the electric furnace. We as well as the operators know that all electric furnaces are not working to entire satisfaction.

A converter plant is successful when it can make any grade of commercial castings, but this is only possible when the conditions around the converter are right. The cupola iron has to be hot enough and has to have the right chemical composition especially as to silicon, which varies with the size of the converter and tuyeres, but in no case should it be above 2.20 per cent nor below 1.80 per cent. The tuyeres should be in good shape and tight and the proper air pressure should be maintained in the windbox. Admitting that the above is correct, there are two distinct psychological moments for blowing a good heat.

(1) The first flame.
(2) The last flame.

The first flame has to come up distinctly, after the wind is put on, in two to four minutes and the last flame has to disappear just as distinctly after all the impurities are oxidized.

All there is left in the vessel is much over-heated iron, almost free of all ingredients except oxide, which is removed by ferrosilicon and ferromanganese, excess of which will stay in the steel. Addition of iron from the cupola regulates the carbon to the desired point.

Thus everything may be all right if it were not for the sulphur, which up to the present cannot be removed from converter steel. But why remove it, if you do not put it in, in quantities which will endanger the quality. The sulphur content increases both in the cupola and in the converter—in the latter due to conversion losses. Taking for instance the mixture prior to melting at 0.04 per cent and the conversion losses at 17 per cent, this will increase the sulphur 0.006 per cent or to 0.046 per cent. The finished steel, however, will show a sulphur content of 0.10 per cent, which means an accumulation of 0.054 per cent, or more than 100 per cent. Right there are all the troubles. The increase of sulphur comes from the coke in the cupola. The longer the iron stays in contact with the coke the more sulphur it will absorb and this means that the increase of sulphur is in direct proportion to the time of contact in the cupola. Therefore the iron has to slide down the cupola in the shortest time possible and the cupola has to be of such size that in order to melt iron for one heat it should take just as

Mr. Sonnenfeld is superintendent, the Lima Steel Casting Co., Lima, O.

much time as it takes to blow a heat. That means that if the capacity of the cupola is too large for the capacity of the converter, the air in the cupola has to be shut off until the converter is ready to take the metal. Thus the iron has a chance to pick up more sulphur. No wonder that the test bar will not pull nor properly bend.

It is most interesting to notice how some converter foundries get out big production with a small melting unit and again how others run low in production with bigger units. It happens that out of two converters of the same make and capacity, the one will produce twice the tonnage of the other. Why? The answer is simple. The man running the one converter has more ability than the other. It is safe to say that the output of a converter is almost unlimited, in the proper sense, considering the molding floor space available for the purpose. The Lima Steel Casting Co., for instance, has a 1-ton converter and molding floor space of 11,000 square feet. The production in May was 393 heats and 331 tons of good castings, whose average weight was about 12 pounds. The average number of heats for May has been 14.6 per working day. This speaks for itself, but we are not the only ones that can do so, as I am sure there are many others that can do the same or better.

The purpose of this article is not to disparage the electric furnace but rather, in the face of past accomplishments, to give to the converter that credit which rightfully belongs to it and which it should have.

Large Shell-Loading Plant Almost Ready

THE government is constructing four of the largest artillery shell-loading plants in the world and the greatest of these, which is located "somewhere in New Jersey" is almost ready. About 25 per cent of the mechanical equipment must still be installed and some storage buildings, representing a change in the original plans, must be constructed. Without this change in plans, coming in May, the plant probably would be finished.

The plant covers an area of approximately 2500 acres. On the site, in addition to the buildings required for the loading operations and those essential to the health and safety of a large force of workmen, already completed, more than 100 buildings, with a total floor area of 1,300,000 square feet, are being erected. These buildings are to provide storage for shells and parts not only for this plant, but also for the materials and output of several other nearby establishments. In full operation, about 2000 tons of material will be handled, and 52,000 loaded shells will be turned out daily. The operating plant consists of the shell-loading units, each independent of the other and with equipment for loading 13 sizes of shells, ranging from the recently developed 37-millimeter, to the 16-inch projectile. Only loading operations are carried on as all materials used are furnished from outside sources. On two sizes, the propelling charge will be loaded, the shell and cartridge case being assembled at the plant; all other sizes will be assembled in France.

Each unit is a complete shell-loading plant in itself, for in addition to the loading equipment, each building has storage room for explosives, empty shells and component parts. Units have been built 100 feet apart to localize any possible explosion and as a fire protection measure. Immense fans have been installed to dispose of the poisonous fumes, while another attempt to reduce the number of cases of poisoning is provided by the use of clothes especially designed for those handling high explosives.

More than 30,000 feet of belt conveyors have been installed and the shells are carried by this means through all of the earlier operations. Shells that have been cleaned, shellaced and dried, pass to the pouring room, where high explosive drawn from cooling tubs into 16-quart buckets is poured into the shells through tin funnels. The shell is filled to within 8 inches of the top and then allowed to cool for a period of three hours. Then comes the removal of the funnel and the putting on of the appliance that insures prompt explosion. The next operation is that of painting, after which the shell is weighed, to determine its range. The final operation is the marking of the size, load and zone of the shell. When turning out 52,000 shells a day, it is estimated the marking of the shells alone will require not less than 250,000 operations. Storage magazines to the number of 33, equipped with bulkheads 12 to 15 feet high and 3 to 15 feet thick are under construction. There are 46 warehouses 50 x 500 feet which provide storage room for shells and parts.

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AT THE LEFT, POURING HIGH EXPLOSIVES INTO SHELLS; ABOVE, EMPTY SHELLS IN STORAGE; AT THE RIGHT, SHELLACING THE INSIDES OF SHELLS

Powdered Coal Ideal War-Time Fuel

Thorough Combustion of Heat Elements Held to be Solution of Problem in Scarcity of Coal—More Power Developed and Great Saving of Fuel, Time and Labor Attained

BY W. G. WILCOX

INDUSTRIAL efficiency and the smooth operation of the machinery of industry require continuous supplies of power, material and labor. These are of equal importance in that the lack of any one is equally disastrous.

Power and materials, two of the factors making up the balanced ration of industry, are bound up in each other. No matter how great our resources in raw material these will be of no value unless power necessary for transportation, manufacturing and fabrication is available. The greatest source of power is through combustion of fuel. The situation in regard to fuel is so alarming as to call for the most careful consideration. Production of fuel scarcely meets consumption. R. H. Aishton, regional director for the United States railroad administration and formerly president, Chicago & Northwestern railroad, states: "There were times last winter when there was not fuel for four hours' needs in the city of Chicago to keep people from freezing to death." This is not the statement of an alarmist but of a man who as director of all the great coal shipping railroads of the middle west knows the facts.

Big Demand for Gas

Concomitant with the greatest demand for coal we have ever experienced we find the great natural gas field of West Virvinia unable to meet the demand. This brings into the list of coal consumers new users who have formerly depended on natural gas. At the same time fuel oil is steadily becoming higher in price. For this situation with all the elements of danger it presents there are three possible solutions: Stimulation of the production and transportation of fuel; developing efficient methods for using low grade fuels hitherto practically unused; and burning fuel so efficiently that the amount available will be adequate for all needs.

At best there does not seem to be much reason to expect any great increase in production. Our greatest opportunity for success in meeting the fuel situation lies in the efficient combustion of both low and high grade fuels. It is wiser to save avoidable losses than to increase supply and thus compensate for losses. It is preeminently the patriotic and professional duty of the chemist and engineer to work for the more efficient utilization of fuel. We should therefore study critically the lines along which we should work. Among the more efficient types of combustion is the use of powdered fuel. By considering the nature of powdered coal as a fuel and its combustion characteristics we can learn its possibilities in the present fuel situation. The requirements necessary for perfect combustion show the possibilities of powdered coal combustion.

How Efficiency May Be Attained

What are the known avoidable losses in combustion? What are the essentials necessary for combustion efficiency? Assuming correct furnace and flue design and proper and controlled draft the essentials of good combustion involve complete oxidation of all the combustible elements in the coal. The loss of unburned carbon in the ash will vary with types of fuel, types of ash and percentage of ash in the coal. It will also vary with the type of stoker used and boiler-load carried. In hand-fired practice it will vary with the skill of the fireman, and in producer operation it will vary according to the quality of the coal, type of producer and operating conditions.

Control of combustible elements and air is absolutely essential if we are to obtain maximum flame temperature with corresponding increased rapidity of heat transfer. The more rapid the heat transfer in the furnace or boiler the higher the capacity of the furnace and, in general, the greater its efficiency.

To maintain in a furnace conditions which the design of the furnace, operation, or metallurgical process occurring therein requires it is essential that the length of the flame be under control. An example is found in a recent development in firing copper reverberatory furnaces. For a long time it has been a practice to fire copper reverberatories with an insufficient amount of air, admitting the amount of air required to complete combustion at ports along the side of the reverberatory.

Short, Hot Flame Required

It recently has been found that in the use of oilfired reverberatories if the number of oil burners firing into the furnace is increased and the mixture of oil and air so adjusted as to give complete combustion with a short, hot flame the capacity of the furnace is increased in some cases as much as 50 per cent, while the fuel ratio is better than anything yet obtained with oil in reverberatory practice. This also is true of reverberatories fired with powdered coal. In this particular operation it has been found that a short, hot flame leads to most efficient operation and highest furnace capacity, but there are other processes in which the reverse is true.

In changing types of fuel, for example in changing from the handfiring of coal to powdered-coal combustion, the economies met with are usually far greater than those which can be figured out from the known losses. The increase in capacity is usually so great that it can only be attributed to increased furnace efficiency. This increased furnace efficiency in all probability follows from the fact that the operator is now able to maintain the flame length and

Lost---$120,000,000

IN the J. R. Alfred lecture delivered at Johns Hopkins university this year by E. G. Bailey he shows that due to the enormous demand for fuel, shortage of labor and other conditions the ash content in coal increased during 1917 *at least* 5 *per cent. This resulted in an increase in coal consumption due to the decreased heating value and lower efficiency, which reached* 10 *per cent. Figuring on a basis of* 600,000,000 *tons of coal produced and marketed last year,* 30,000,000 *tons of dirt, slate and rock were handled in excess of that which the coal would normally contain. At a price of* $2.50 *f.o.b. mine and a freight rate of* $1.50 *per ton the consumer paid* $120,000,000 *for worthless material. The additional cost of firing this coal, repairing furnaces, stokers and locomotives and the cost of handling the ashes added some millions of dollars to the bill.*

From a paper delivered before the western New York section of the American Chemical society, May 31. The author, W. G. Wilcox, is associated with the Powdered Coal Engineering & Equipment Co., Chicago.

type of combustion for which that particular furnace design is best suited. When in changing from handfired practice to powdered-coal it is found that only from 30 to 40 per cent as much coal is used as formerly the greater proportion of the saving is very evidently due to change in the efficiency of the furnace.

That type of combustion which is to be most efficient must possess flexibility in capacity. Flexibility in combustion means rapid response. Only in this way can a cold furnace be brought to heat very quickly or a standby boiler come up to peak load rapidly. This makes for efficiency because it reduces the fuel consumption during the standby period.

Control of the Nature of Combustion

In many operations it is not only necessary to heat uniformly, quickly and efficiently but it is equally important to maintain a certain chemical condition in the furnace. This condition may be oxidizing, reducing or neutral. In any case the control of combustion should be such that the desired condition may be maintained within very close limits. Failure to do so means a waste of fuel. Maintaining an oxidizing condition without ability to control it within close limits will result in having present too much of an excess of air which will lower flame temperature, lessen output, lower furnace efficiency and reduce fuel efficiency. Likewise a reducing condition unless maintained within close limits means that fuel is needlessly wasted. If the operation demands a neutral condition there may be some loss due to spoiling of product unless there is the ability to maintain the neutral condition quite exactly.

The best example of two-stage combustion is the producer. The producer affords in many of its applications an overall efficiency which is considerably higher than that obtained by other methods. Nevertheless, we should clearly realize that in the process for making producer gas there is an inherent loss of at least 20 per cent because of the inability to gassify without forming a certain percentage of CO_2, due to heat losses at the producer and losses in heat from the gas between the producer and the point at which it is used.

Final Flame Temperature Affected

There is another objection to two-stage combustion. When combustion is completed the final flame temperature is lower than in a one-stage process. Furthermore, a two-stage combustion may result in "cracking" some of the most valuable constituents of the coal with the formation of smoke in the furnace and soot in the producer.

Having considered the essentials for efficient combustion, we can correctly estimate the value of powdered coal as an efficient fuel by studying its characteristics.

The simplest way to regard the combustion of coal is as a reaction between fuel and oxygen. The velocity of the reaction and its completeness will depend upon the surface exposed by the solid, the pressure of the reacting gas and the intimacy of the mixture. By grinding an inch cube of coal so fine that 85 per cent will pass a 200-mesh screen we have increased the surface exposure from six square inches to approximately 1800 square inches. We have therefore increased the velocity of combustion approximately 300 times. We have a fuel relatively 300 times more active than the inch cube of coal, a new type of fuel the inherent possibilities of which is not met with in lump or slack fuel.

Points Way to Economy

THE possibilities of powdered coal as a fuel are not only capable of realization but are actually being realized. To the flame characteristics of a rich fuel developing a flame like oil or gas is added a superior degree of control. The possibilities of such combustion for the improvement of processes, for fuel economy, and for increasing output through ease of control and elimination of heavy labor, are today realized by few. Due to the psychological attitude of labor and the scarcity of skilled operatives it is far more difficult than ever to obtain high efficiency and good operation wherever such efficiency depends upon constant watchfulness and hot, heavy, disagreeable work. For these conditions powdered coal offers an alternative worthy of serious consideration.

The increased velocity due to greater surface exposure and that due to rises in temperature are superimposed on each other so that we have with pulverized fuel a combustion which is hundreds of times faster than when burning lump coal.

Having a finely divided fuel it is possible to form a mixture of fuel and air so intimate that each small particle of coal is surrounded by the proper amount of air. In this condition, by maintaining the proper velocity of the air current, the fuel can be carried into the furnace in suspension and there burned completely, efficiently and rapidly.

It is practicable to control mechanically the amount of powdered coal delivered to the furnace in a given time. It is also possible to control the amount of air delivered with the coal. If we delivered to the furnace an intimate mixture of air and powdered coal and have control of the amount of coal dust and air delivered we have the prime essentials for highest combustion efficiency. These are the possibilities in utilizing coal in powdered form.

Design of Feeder

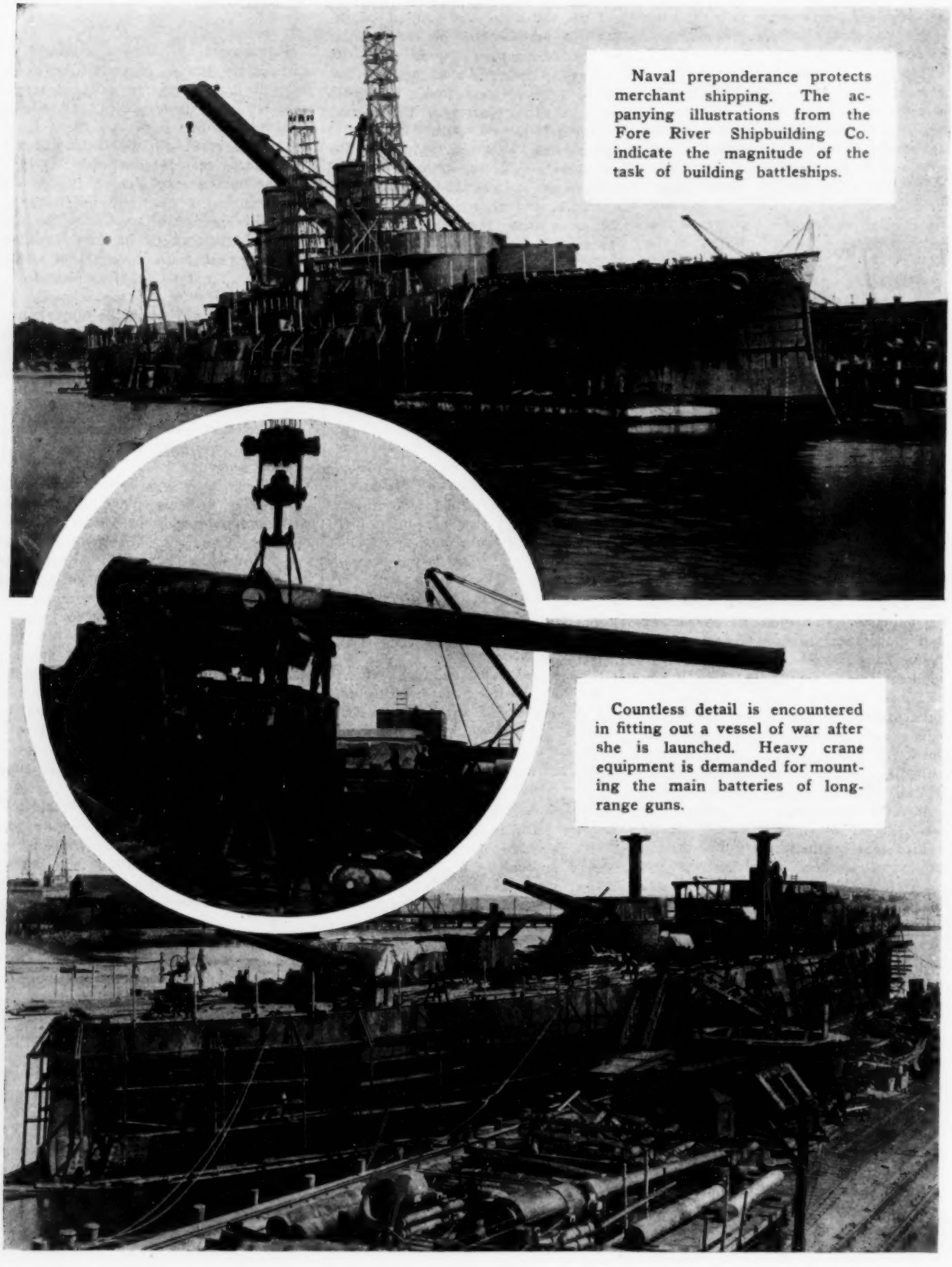
The amount of coal dust delivered to the furnace can be controlled by using as a feeder a properly designed screw operated at variable speeds. It is also a simple matter to control the volume of air admitted with the fuel. But the highest efficiency possible with this type of fuel will not be obtained unless we work out a correct way in which to mix a finely divided solid with the air.

The importance of intimately mixing the coal dust and air cannot be exaggerated. The rapidity of combustion is a direct measure of the intimacy of mixture. The poorer the mixing the longer the flame. The flame simply outlines the area in which combustion is taking place and the length of the flame is a measure of the time element necessary to accomplish combustion. This time element—other conditions being equal—is absolutely a function of the intimacy of mixture.

A fuel having the great possibilities offered by a finely divided combustible is of extreme importance especially under present conditions. Because of these possibilities all of which are capable of being realized and which are satisfied by commercial equipment now on the market there is less excuse for permitting inefficient operation with this fuel than with stoker or handfired practice. Apparatus properly designed and fundamentally correct in principle will give proper efficiency. Such apparatus by giving an intimate and controlled mixture of fuel and air to the furnace will permit the highest furnace efficiency.

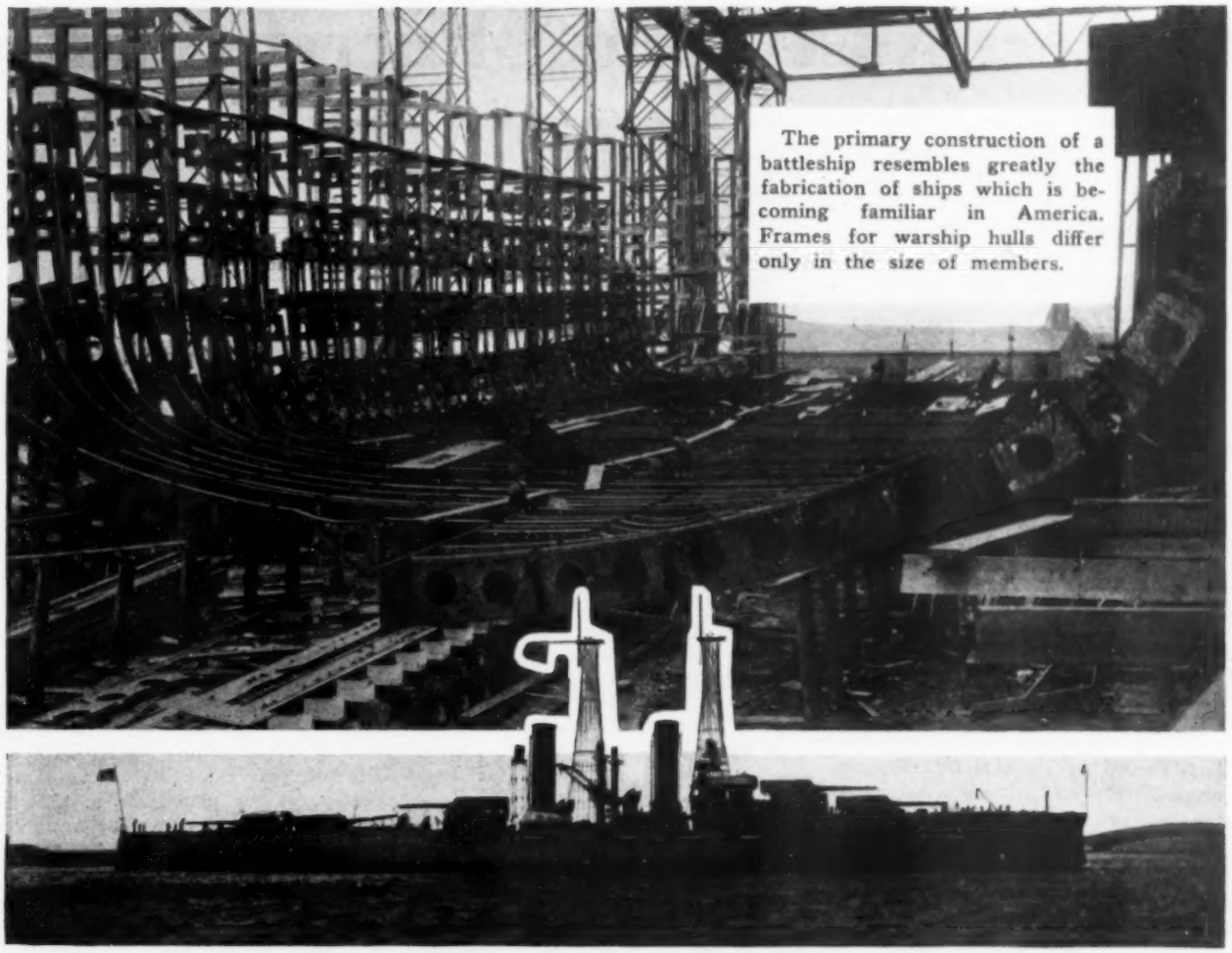
In order to provide for the industrial progress which has prevailed the past year, the chemists' committee of the United States Steel Corp. has revised its pamphlet entitled "Methods for the Technical Sampling and Analysis of Gases". A few changes have been made in the text of the first edition. A method for analyzing natural gas has been incorporated. A complete description of the apparatus used for sampling the gases is given in the beginning of the text. Following this are selected methods for analyzing blast furnace, producer, by-product, flue and natural gas. While no originality is claimed in general for the methods, yet the delineation of the latter has been made in detail so as to be clearly intelligible to amateurs as well as those better versed in the subject. Copies of the pamphlet may be obtained from J. M. Camp, chairman chemists' committee, United States Steel Corp., Pittsburgh.

Making the Seas Safe for Shipping

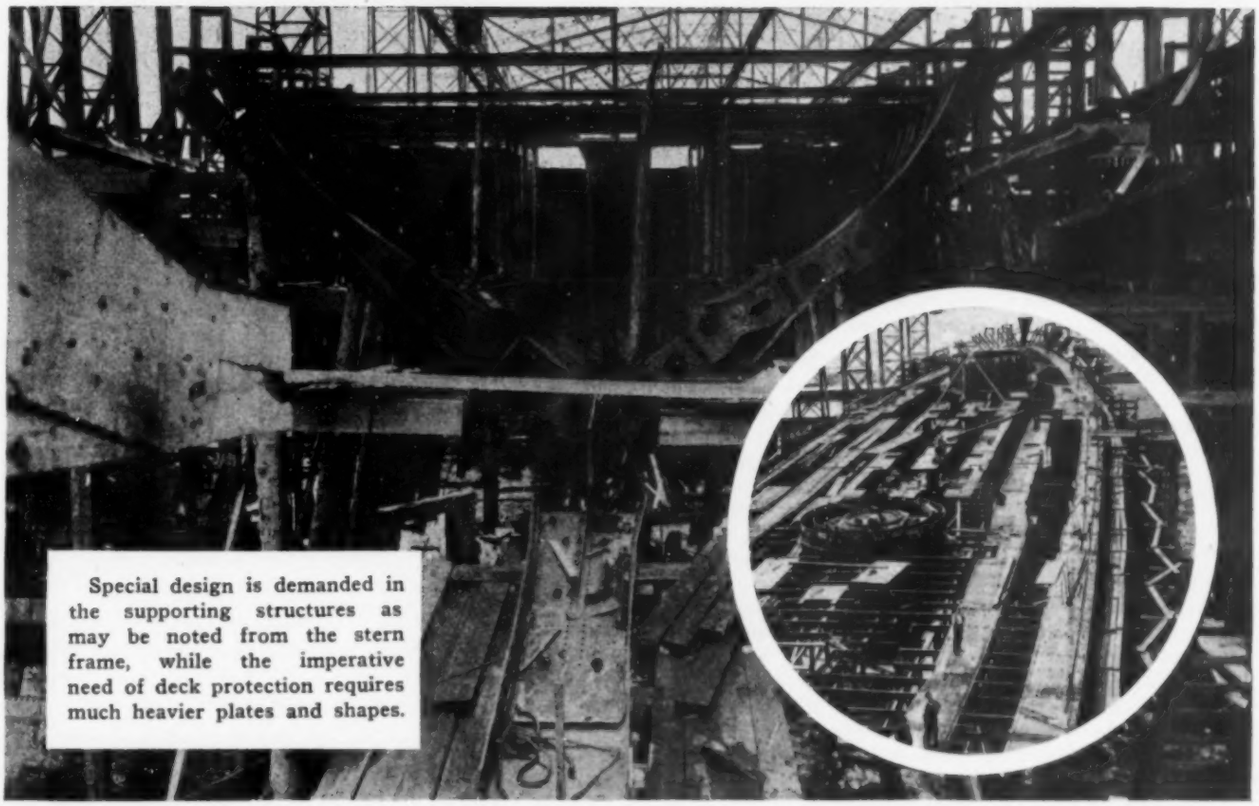


Naval preponderance protects merchant shipping. The accompanying illustrations from the Fore River Shipbuilding Co. indicate the magnitude of the task of building battleships.

Countless detail is encountered in fitting out a vessel of war after she is launched. Heavy crane equipment is demanded for mounting the main batteries of long-range guns.



The primary construction of a battleship resembles greatly the fabrication of ships which is becoming familiar in America. Frames for warship hulls differ only in the size of members.



Special design is demanded in the supporting structures as may be noted from the stern frame, while the imperative need of deck protection requires much heavier plates and shapes.

Kaiser Must Yield Mineral Spoils

Allies Will Not Permit Germany to Become Indomitable Competitor by Means of Rich Iron and Coal Deposits Stolen From France—How This Aspect of Peace Question Vitally Concerns America

BY FRANCIS MILTOUN
Paris Correspondent of The Iron Trade Review

9 Rue Falguiere, Paris,
June 18, 1918.

PROPAGANDA in the interior of a country as to that nation's exterior politics, as well as to the justification of its pretentions, is as necessary as propaganda in foreign lands. The question of Alsace-Lorraine is one of the most important of the war. It is not a fanatical, *soi-disant* patriotic sentiment of the French alone, it is the prime consideration of the whole civilized world, narrowing civilization down to the allies and neutrals. But there is another side to the question. The treaty of Frankfort by which France was shorn of her beloved provinces carried with it an indemnity of $1,000,000,000 to be paid by France to Germany. The total French war loan to date approximates $6,500,000,000, six and a half times the war indemnity of 1871, a figure which makes even the American Civil war loans look insignificant since they ran only to $1,646,500,000, including Jay Cook's first $500,000,000. The figures are mentioned to give the American focus to things as they are today in France.

The French frontier as reconstructed after the Franco-Prussian war gave to Germany what Bismark thought was the entire coal and iron region of Lorraine and the Saar valley coal deposits. He overlooked the fact that the famous basin of Briey lay wholly on French soil, else he would have insisted on a few more square miles of territory and included that. He did, however, get the potash deposits of Alsace, so the bargain was all in his favor. France submitted with as good grace as possible and kept quiet about Briey. *Caveat emptor* is an ancient law term which has ever been applied in striking a bargain between buyer and seller.

Three Epochs in Frontier's History

The history of the frontiers which enclosed these remarkable mineral producing regions is divided into three epochs. Germany never thought of coveting them until their riches were established realities. Today when the lack of German steel and iron other than that made from these deposits is beginning to be felt, not only the German war establishment but industry of all kinds is insistent upon their retention by Germany as one of the ends and objects of the war. German ammunition and armament factories have robbed private industries of railway rolling stock. Lack of transportation facilities and lack of rails to make good the wastage of four years of war is affecting these industries. Says the *Westphalia Gazette:*

"The economic crisis created by the war has been transformed into a transportation crisis. The railroads are powerless to transport the raw materials and manufactured products necessary to our daily life. In the iron regions of Siegen and Nassau, which are far from a neighboring supply of coal, the transport of pig iron itself is so hampered by the irregular arrivals of coal and coke that the local steel and wire works are frequently shut down for long periods at a time.

"This is what might be called an echo from the heart of things since it is quoted from a German source. The European allies recognize these little tremors as something indicative of a state of affairs in Germany which can but work to their benefit. Conditions under which the allies are keeping up their courage can be depended upon as being 10 times more stringent in the territory of the central powers. And this to say nothing of Germany's enormous war debt which she hopes to have paid by the allies, a debt which the Industrial Union of Saxony, has stated exceeds 14,800,000,000 marks, four times the total debt of the central powers before the war. The union claims that the sum represents 60 per cent of the entire revenue of the country, and this, if capitalized at 5 per cent interest, would require a sum of 392,000,000,000 marks to carry without other resources of the country suffering. Such a load will of itself paralyze Germany and her adherents for many years to come. Truly, time is in favor of the western allies. Time and the United States and its resources will win the war.

The whole question of a rectification of frontiers for the allies lies in the west with the fact that all the valuable territories taken by Germany are to be brought back to the mother fold. The treaty of Frankfort gave them and their mineral resources to Germany despite opposition of the Alsacian and Lorraine deputies in the French chambers, a treaty which could hardly have been expected to hold in view of the opposition of the people. Three times this elastic frontier has wavered back and forth: First in 1814, secondly in 1815 and lastly in 1871. Napoleon, ever considerate of the economic progress of the empire, prescribed the first geologic researches of the region. These were carried to such minuteness of detail that if the French of later years or the Germans were not sufficiently optimistic thereto each of them let a golden opportunity slip by to sew them up in the national stocking.

Under this Napoleonic survey the French School of Mines of the Saar valley produced what might be called the first mining atlas. As far back as 1795 the coal extraction amounted to 500,000 tons per annum and in 1809 to three times that volume. The treaty of Paris, May 30, 1814, gave to France these regions of the Saar, which had been taken from her, and left the geological map of the eastern frontier as it was originally under the monarchy.

Between the epoch of the treaty of Paris and that which followed the battle of Waterloo the Prussians had a garrison in the region of the Saar, and, appreciating the value of the district from an economic and industrial viewpoint insisted upon a rectification of the frontier as a part of their recompense. This was accomplished by the treaty of Vienna, Nov. 20, 1815, and resulted in France being robbed of a part of the Saar valley region, approximately the entire coalbearing zone, and also the Canton of Landau in the Alsacian valley of the Lauter. Prussia demanded in addition the cession of the plates of the geological atlas and the reports which had been made by the French under the Napoleonic empire, and these were turned over to Prussia two years later. Nothing was too trivial for Prussia to concern herself with. She was not willing to make these studies on the spot, but demanded the product of French genius.

The Danger for the Allies

The treaty of Frankfort, 1871, by which Alsace and Lorraine were shorn from the mother country, France continued the work of the economic invasion of French territory by Germany. This was but a continuation of the in-

vasion which Prussia had outlined in 1815. As a result there was united to the German empire, which came into being by the crowning of the old Emperor William at Versailles, as a part of the indignity thrust upon France by the terms of that same treaty, the rich deposits of the coal fields of the Saar and the iron deposits of Lorraine. Briey was still out of the question, by reason of the fact that German acquaintance therewith did not go so far as to foresee its supreme richness. This is another proof that Germany's policy has ever been the exploitation of that which others had first charted. Today it is a question of Briey at all costs and Germany will demand that Briey shall be the price exacted for her shocking waste of the blood of her own people.

This is as Germany sees one phase of the war which has raged on the western front four years. The iron and steel and allied metal trades of the whole world should see it differently. Germany must not be allowed to make herself an indomitable competitor in this greatest of economic industries. The United States must realize that it is not alone France whose interests are concerned. There must be no dumping of German-made steel on America's shores as a result of Germany's unholy acquisition of these iron and coal deposits which would enable her to work her raw material up on the spot and transport it down the waterway of the Rhine to the Belgian port of Antwerp or the Holland port of Rotterdam by the cheapest of all transportation methods.

There is one aspect of the question which will make the settlement the more easy when the allies come to state their terms. The coal mines of the Saar, neighboring upon the iron fields of Lorraine, a factor which makes them so valuable, are now the property of the Prussian government. Should these coal deposits actually come into possession of France, as is reasonable to suppose they will, they will reduce her importation of smelting coke. The French consumption the year before the war was 3,000,000 tons of domestic coke and a like volume of imported. With these fields of the Saar back in the fold there will still be available for France almost the entire supply she will need besides a surplus of 5,000,000 tons which can be devoted to Alsacian industry, about the volume which Germany so grudgingly granted the annexed provinces previous to the opening of hostilities.

Women are now employed at the plant of the Westfield Mfg. Co., Westfield, Mass., bicycles, motorcycles and shells. The lighter forms of shop work such as inspecting shells and clerical work afford employment for the woman hired to release men for war service.

HOW GERMANY PUSHED HER ECONOMIC INVASION OF FRANCE UNTIL SHE HAD PRACTICALLY ALL OF FRANCE'S COAL AND IRON DEPOSITS. THE HEAVY LINE INDICATES THE FRONTIER IN 1814; DOTTED LINE, THE FRONTIER IN 1815 AND THE DOT-DASH LINE THE FRONTIER IN 1871

Soldering Iron Rack and Control Panel

Electric soldering irons which are left to lay promiscuously about when not in use, gather dirt and become a hazard. Often the tip will be overheated, necessitating refiling; the heating unit may burn out; or the hot iron may set fire to the bench and material lying about. If the current is turned off the iron cools down to such a degree that considerable delay is caused when the iron is again wanted.

To overcome these objectionable features, the Cutler-Hammer Mfg. Co., Milwaukee, recently developed an automatic soldering iron rack and control panel which decreases the amount of current taken by the iron when it is placed on the rack. This keeps the iron from overheating, prevents burnouts, saves current and encourages orderliness. The rack consists of a small slate panel carrying a support for the iron which acts on the principle of the telephone receiver hook. When the iron rests on the hook it bears the support down and resistance which is mounted on the back of the panel is inserted in circuit with the iron. The current is reduced and the temperature held at a safe value, but ready for service and full current just as soon as the iron is lifted from the hook. Taking the weight from the hook disconnects the resistance from the soldering iron circuit and allows full current to flow. The rack may be mounted on the wall or machine within easy reach of the workman.

Answering the War Labor Question

How the Rochester Plan Was Shaped to Meet the Emergency of Procuring Maximum War Production With a Minimum of Available Munition Workers—Drafting Labor From Non-Essentials

BY JAMES T. HUTCHINGS

SOME of the statements which have appeared in print regarding the so called "Rochester Plan" for recruiting war labor have been somewhat overdrawn and misleading. The writer is glad to have this opportunity to outline what has been accomplished and what it is hoped will be accomplished in this movement.

Rochester is an industrial city of about 270,000 people, situated in the central part of western New York. It has 1700 manufacturing plants. Prior to the war we had two large factories manufacturing shells for the allies. These contracts were mostly placed on the basis of immediate production and the two plants, being subject to penalty for non-delivery, gave no attention whatever to the effect upon other manufacturers when they were ready to man their plants. Superintendents and foremen were hired from outside plants with the understanding that they were to bring their men with them. This method in many cases seriously crippled some of the other industries. Fortunately at the time these plants were started there was a lull in the demand for manufactured articles and the labor market was comparatively easy. Prior to the war, early in 1917, these contracts were completed. Immediately after the declaration of war in April, 1917, the ordnance department faced the problem of supplying an army of over a million men with guns and ammunition. Due to the successful and prompt manner in which shrapnel had been supplied under contracts to the English and Russian governments, Rochester was selected to build a complete plant for the manufacture of a famous French gun, in addition to two shell plants and a forge shop.

Co-ordinate Through Commerce Body

Early in August Major Jameson of the ordnance department visited Rochester and immediately placed himself in touch with the Rochester manufacturers through the chamber of commerce. At a meeting of some 50 of the executive heads of the largest manufacturing plants he outlined some of the problems of the ordnance department and the part which he expected from Rochester. At this conference Major Jameson outlined what has since developed into the "Rochester plan." In the light of what has occurred since, he displayed a wonderful insight into the conditions which were to occur. The problem which he put up to the Rochester manufacturers and which the Rochester manufacturers agreed to accept as their problem and their responsibility was to see that as fast as tools and machinery could be assembled and housed, the necessary men should be forthcoming to man these tools and at no time should there be more than 48 hours delay in putting tools into production after they were ready for the operators.

Fortunately for the past four or five years the Rochester chamber of commerce had a close association of manufacturers through the manufacturers' council of the chamber. In the fall of 1916 there was formed the industrial management council, which is a distinct branch of the activities of the Rochester chamber, formed by membership of various manufacturing companies, who, through this organization, have separately financed a personnel of paid experts. The object of this council is to secure investigations by paid experts and systematic interchange of ideas and information regarding the most efficient and economical factory methods. The habit of co-operating had been formed before the great necessity arose. Practically the same group of manufacturers who formed the industrial management council of the Rochester chamber of commerce undertook the problem of supplying the necessary help to man the munition plants which the government placed in Rochester.

Organizing to Handle Labor

A committee was appointed to outline the scope of the work and the method of financing the project. Within a week this committee reported on a plan to raise $30,000 to cover the necessary expenses of carrying on the work. As it was felt that the principal difficulty would be in securing skilled machinists and tool makers, the first assessment was based upon the payment by each manufacturer of $3 for each skilled metal worker in his employ and 25 cents for every other employe. This plan was adopted immediately and before the meeting adjourned $25,000 of the $30,000 required was underwritten and the amount was later oversubscribed. The meeting in addition selected an executive committee of nine of the principal manufacturers to carry on and supervise the work. This committee immediately secured the services of a man who had had experience along similar lines to establish a central employment bureau which should act as a clearing house between all of the members of the underwriting companies and should be responsible for the supply of the necessary labor for the munition plants. This central bureau operates under the supervision of the executive committee of the underwriters. In this central employment bureau there are at present employed from 10 to 12 people. This force has been built up as conditions required. The executive committee felt that the first and most important consideration was to see that all the unemployed skilled labor was given work and

Drawing to a Pair

ONE pair does not usually constitute a pat hand. Only self-sufficiency or a strong bluff is satisfied to pass the draw. Neither attribute is to be admired in the manufacturer of war munitions at the present time, nor in the community which supports factories engaged in war work. Labor is the vital essential in attaining top production, and any factor which contributes to the sum total of labor or to the efficiency of that already employed should not be overlooked. In the accompanying article Mr. Hutchings outlines what Rochester, N. Y., has contributed toward securing increased output in munition works. The questions of training unskilled labor, of securing new workers, and of alloting those already otherwise employed were handled with maximum munition production as the goal. Rochester was not satisfied with a scrawny pair. The draw so far has netted three of a kind and may mean four aces.

Abstract of a paper presented at the recent Chicago meeting of the chamber of commerce of the United States. The author, James T. Hutchings, is vice president and general manager of the Rochester Railway & Light Co., Rochester, N. Y.

to carry out this plan the employment manager of each of the underwriters sent to the central employment bureau a list of all his applicants with their addresses and qualifications and, further, suggested to all new applicants not required for his own work to register at the central employment bureau. In the meantime advertising matter and circulars outlining the movement in progress in Rochester were made up and, as the demand for labor increased, advertisements, were placed in the papers in the surrounding territory wherever it was felt that skilled mechanics could be obtained without interfering with other war work.

As men came in from outside territory the question of housing became serious but through the co-operation of real estate men with the central employment bureau we have been able thus far to house the newcomers satisfactorily. Advertising in the newspapers at various times has asked that all owners of houses for rent should give information in regard to the location, number of rooms, rent asked, etc., and the committee has gone to the trouble of sending someone to look these premises over to prevent discouraging the newcomers by sending them to houses which were unfit for tenants. We have been able to bring pressure to bear upon landlords to see that houses which have not been occupied for some time are put in a usable condition.

Training Workmen

While this was going on, the munition manufacturers were asked to furnish, so far as possible, an exact schedule of the number of men required and the date on which they should be furnished. Through these methods up until about the middle of March, this year, we have been able to supply all of the labor required without interfering in any way with other Rochester manufacturers. This condition would not have occurred had it not been for the delays in receiving material and tools and in the erection of the necessary buildings caused by the extreme cold winter and the congestion of the transportation facilities of the country. We have now approached the time when real problems of labor confronts us. H. E. Miles, chairman of the section on industrial training for the war emergency, brought home to us through an address in February the great possibilities in connection with the establishment of training schools in various factories. He showed conclusively that we must begin immediately to train the semi-skilled to become skilled, the handyman to become semi-skilled and the common laborer to become handyman; and further, he outlined the possibilities of the use of women in industry.

Since March 15 with an increasing demand for skilled mechanics the committee found itself confronted with the fact that we had very largely taken the skilled men from the surrounding territory. We were thus practically prohibited from soliciting skilled men from those communities manufacturing war supplies, and today there is no community of any considerable size east of the Mississippi river which is not supplying war material.

Drafting Labor to War Work

The total labor requirement for our war industries will amount to 12,000 men. About 7000 of these have been supplied. We still have 5000 to furnish and the committee believes that we have approached the critical period. Further, we find at the present time there are no skilled tool makers and machinists who are not employed. The problem which confronts us is to obtain the necessary skilled men to man the tools which will shortly be ready for operation. To meet this problem the committee was authorized at a recent meeting of the underwriters to make an inventory of the men available in all Rochester factories and to authorize the employment manager of the central employment office to make a draft equally upon all of the Rochester industries. The method to be pursued was to determine from week to week the requirements and the percentages which these requirements bear to the total men available in the city and to then draw from the various manufacturers in proportion, through the application cards which we have on file. Through this method we will not cripple any individual factory and will still be able to supply the necessary help to the munition manufacturers. In addition we will place an equal burden on all manufacturers in the matter of training new help through their training schools.

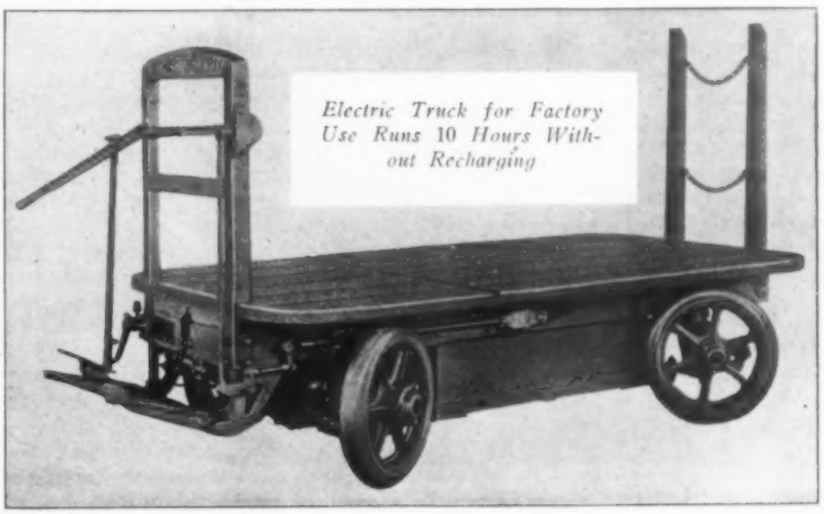
In Rochester we believe that the problem is to deliver whatever is required for the carrying on of the war successfully, and that to do this it is necessary that the wages paid in the munition plants should be somewhat more than those paid in factories not directly manufacturing munitions. In other words, regular lines of manufacturer should not compete with the government in its requirements for either material or labor. We must, both manufacturers and employes, place the emphasis on production and so plan all of activities as to make the greatest possible production.

We have had some difficulty in getting manufacturers to see that it is not to the public interest for them to bid against the munition manufacturers for labor. However, if this idea is to be carried out in justice to the laborer, the government should see that the wage in the munition factories is adequate. In considering what is adequate, however, we must bear in mind that if we are to carry the war to a successful issue, we cannot any of us, manufacturers or labor, expect to have all of the luxuries, comforts and necessities which were common to all prior to the war.

Motor-Driven Truck Reduces Labor Cost

In every manufacturing plant, warehouse, railroad and marine terminal, the lack of labor and the increased wages of today warrant the installation of labor saving appliances. A great help in reducing labor costs, in the transportation of materials in factories, warehouses, etc., has been effected, by the use of an electric truck put out by the Crescent Truck Co., Elizabeth, N. J.

This truck is especially designed for heavy work and will run without recharging at a speed of from five to seven miles per hour with a full working load for a 10-hour day. The frame is made of 4-inch channel steel and is



Electric Truck for Factory Use Runs 10 Hours Without Recharging

thoroughly braced with large gusset plates and cross members which are firmly riveted. A hinged platform is installed which can be easily raised thus giving easy access to the driving unit and battery when adjustments are necessary. The transmission is enclosed in an oil-tight housing no parts of the driving unit being exposed.

The truck is also equipped with a steering gear. The latter is operated by a lever directly connected with all four wheels. The truck is provided with a brake which is of the internal expanding type, and although set at all times has to be released by the operator's foot. A cutout switch is so arranged that when the operator steps from his platform it automatically breaks the connection and the power is turned off.

Australian Zinc Goes to British Government

Howard A. Treat, secretary to the commercial attache at Melbourne, Australia, reports:

The federal government has contracted to sell to the British government the whole output of zinc concentrates in Australia for the period of the war and 10 years thereafter. On his previous visit to London the prime minister contracted for the sale to the imperial government of 100,000 tons of zinc concentrates and 45,000 tons of electrolytic zinc and spelter for 10 years. The new arrangement contemplates the British government taking the stocks of zinc concentrates on hand Dec. 31, 1917, less a definite percentage reserve, and thereafter 250,000 tons per annum for the period of the war, and 300,000 tons annually for the following nine years. Provision is also made for supplying the requirements of the Australian zinc refining works and the fulfilling of Japanese contracts during the period covered by the British contract. It is also hoped to extend the contract to take in copper and lead. Under normal conditions the Australian output of zinc concentrates, averaging from 46 to 48 per cent zinc, is about 400,000 tons per annum.

Electric Furnaces Produce Sound Steels

BY JOHN H. MATHEWS
President, Halcomb Steel Co.

TWO years ago I had the honor of presenting a paper entitled: "The Electric Furnace in Steel Manufacture," to which Mr. Robinson has referred. In that paper it was my pleasure to report in a preliminary way the notable installation at South Chicago and to intimate that the details would doubtless be made the subject of a separate communication by some one intimately connected with this development. That Mr. Robinson's instructive paper fulfills this promise in a most satisfactory way you will all agree. To those of us who have been following the subject for 15 years or longer it is much more wonderful than anything we contemplated in the early days of the electric process. If the inventors foresaw such developments and disclosed their visions to us, we discounted them.

In the introduction of electric steels for several years when we were alone in the field, we would have been more successful had we not been alone. The case is well stated when Mr. Robinson says, "the luxury of today is the necessity of tomorrow. Safety cannot be measured by price, and public opinion will more and more insistently call for the highest excellence in the automobile, the airplane and other forms of fabricated material." It was hard enough to convince users of the superior quality of electric steel in the early days and still harder to get makers of open-hearth steels to admit it. It is certainly refreshing when a man so well informed as Mr. Robinson concerning the merits and limitations of bessemer and open-hearth steels comes out in an unqualified way to endorse what we have contended for many years.

The data submitted as to relative ductility at low temperatures is instructive and may not be without practical application in connection with airplane steels. The latter while in use are frequently subjected to a combination of vibrations and shock at low temperatures which will tax the best materials. Light field or body armor which will withstand the ballistic test at normal temperatures may fail in intense cold. From a close connection during the past year with the preparation of specifications for materials for such purposes, I do not feel that these finer points have received adequate attention.

Two years ago I said: "Not only in automobiles and airplanes, but in many other ways, electric steel will give a good account of itself for military and naval purposes." I know it has done so as regards our own products and I have been told by those in a position to know about the products of the Illinois Steel Co. and of other firms. We have an electric furnace productive capacity in the United States that could take care of the entire requirements of the aviation and body-armor programs, and leave some over for trucks, gun parts and other exacting needs of the government.

The combination of bessemer, open-hearth and electric steel practice has been called the triplex process, while the early use of open-hearth and electric as practiced by us is a duplex process just as truly as that of bessemer and open hearth to which the term is generally applied. Contradictory as it may seem, I think that the apparently method of direct-cold melting and refining in the electric furnace might be called the complex process, for I believe that making uniform, well-melted steel direct from low-grade scrap with the use of two slags, requires greater metallurgical skill and persistent care than are required by either process where a liquid base and only one slag are employed.

The high-load factor, reported in Mr. Robinson's paper is remarkable and I should like to ask the author if his figure is based upon connected load or upon a peak-load basis. Upon the latter basis we have not been able to equal this load factor. Over 40 years ago Sir William Siemens stated that the function of electric melting is to effect such reactions and decompositions as require for their accomplishment an intense degree of heat, coupled with freedom from such disturbing influences as are inseparable from a furnace worked by the combustion of carbonaceous materials.

Several results follow because of this which are of vital importance just now. Easily oxidizable metals like vanadium, chromium and manganese are readily handled and hence less of them need be used to give a final minimum content in the steel. Also, there will be less of the oxides of these metals produced in and removed from the steel. Sulphur and phosphorus can be readily eliminated and it is obvious if they are essentially absent they cannot segregate. Therefore cropping may be reduced and yield increased,—practical conservation! Alloy additions may be made in the furnace rather than in the ladle thereby increasing solution, diffusion and homogeneity.

All of these considerations make for

Discussion of paper on South Chicago Triplex process presented by T. W. Robinson, at May meeting of American Iron and Steel institute, New York.

quality when the latter is the first consideration, and beside, the electric furnace performs an economic function from its adaptability for handling and recovering alloy scrap. With the chromium and manganese situation as it is, this ought not to be overlooked. Some alloy scrap is not a desirable addition to open-hearth furnaces, or, if made, a large share of the alloy is lost in the slag. It is highly desirable in these days of conservation that no alloy material be lost.

One more economic consideration may be mentioned. With wise state and national policies affecting hydro-electric developments, we may see a great electric-steel industry develop without impairment of coal reserves. There are indications that the government is taking a more enlightened view in regard to developing or permitting the development of those great and inexhaustible natural sources of power—the waterfalls. When such developments are accomplished the electric furnace will utilize power to reclaim materials which in fuel-fired furnaces are irretrievably lost, and produce the maximum yield of particularly sound steels necessary to the advancing demands of war and of the longed-for peace.

Rapid Concrete Wall Construction

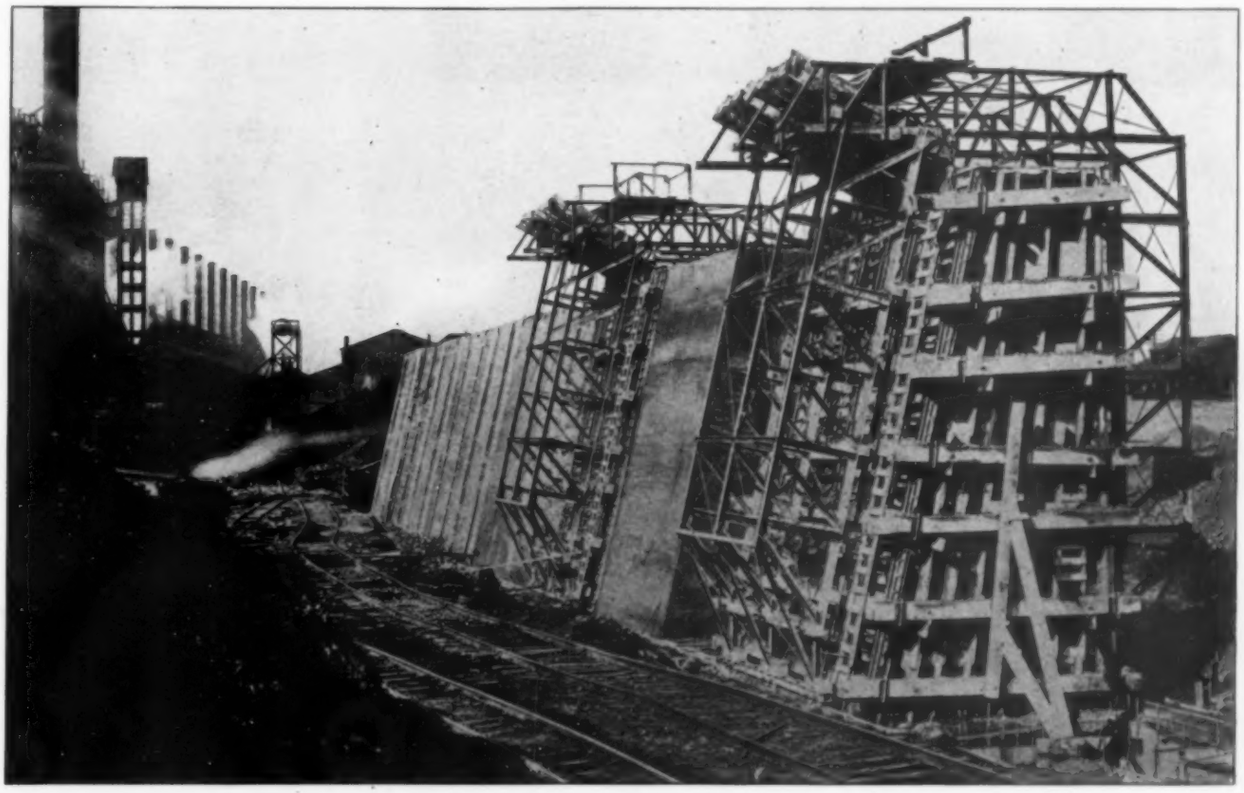
SECTIONAL steel forms for concrete construction are not a novelty. Their use has been standard in sewer and conduit construction for some years. The application of the principle to heavy walls, however, is a recent development. The accompanying illustration shows an ore storage retaining wall recently constructed for the Brier Hill Steel Co., Youngstown, O., where large movable forms were used. The wall was constructed in sections, as may be noted.

Two types of forms are used on this work. These are moved forward alternately. The first section, shown in the foreground, is constructed with bulkheads, which are hinged to the truss forms in such a manner that they may be swung open as a door, when the strutting and a few bolts are removed. The section with the bulkheads is run ahead on the trackway, and alternate sections of the wall are poured. The rear section is then moved along and the gaps between alternate blocks of concrete are poured in succession. The rear section is allowed to overlap the alternate finished portions of the wall, in order that the spaces left may be filled solidly.

The trusses which form the framework for the forms are designed to take the lateral thrust, and the wooden face portions of the forms are held firmly in place by jacks, which react against the side trusses of the traveler. This feature eliminates the use of cross-tie rods, customarily used with wood frame wall forms to take the outward pressure. The side framework is held rigid at the top by means of cross girders, and at the bottom by struts, placed against offsets in the concrete foundation, or by means of heavy removable rods placed at intervals horizontally.

The advantages of this type of traveling wall form include a saving in time of erection, and a certainty that the computed stresses encountered will be fully taken care of by the trussed framework. The strength of the form is not dependent upon the efficiency of laborers in placing cross-tie rods to hold the structure rigid.

In the job illustrated each section was used on an average of every other day. That is the form was moved forward, set up and poured one day and allowed to set throughout the following day. The problem was more dependent upon the rate of mixing, pouring, and

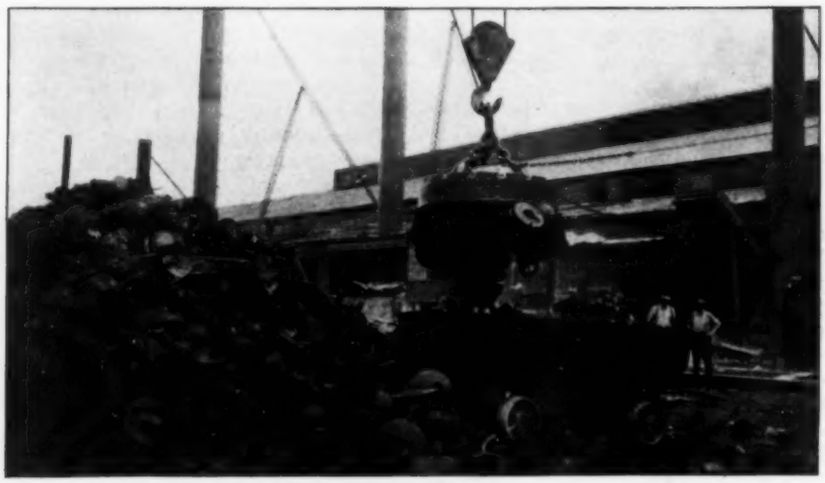


CONCRETE WALL UNDER CONSTRUCTION WITH TRAVELING STEEL-FRAMED FORMS

attaining initial set than upon the speed of assembling the sections in place, as the forms may be released, and moved forward readily. The wall shown is 34 feet in height and tapers from 18 feet at the bottom to 10 feet at the top. Each section is 30 feet in length. The forms were furnished by the Blaw-Knox Co., Pittsburgh.

Improves Lifting Magnet

Two troublesome features which have long characterized electro-magnets are grounds, more familiarly known as open ends and short circuits, and loose and broken bolts, the latter leading ultimately to the breaking of the renewable outer rings. Both may be attributed to the loosening of internal screw and nut connections caused by the severe vibration and jolts to which magnets are subjected.



NEW TYPE OF MAGNET CONTAINING WELDED CONNECTIONS AND ASBESTOS INSULATION AT WORK ON FOUNDRY STOCK PILE

To eliminate to as great a degree as possible these undesirable factors, the Ohio Electric & Controller Co., Cleveland, recently placed on the market a lifting magnet in which all connections are welded and all insulation asbestos. The magnet ring is over 8 inches high and is secured by heavy chrome, vanadium steel studs with nuts on the top of the case protected by ribs raised from the outer rim of the cast-steel case. The accompanying illustration shows one of these magnets at work on a stock pile of castings in a foundry yard.

Discuss Physical Tests

In the report of subcommittee I, of the steel committee of the American Society for Testing Materials, on the rail situation, presented at the June meeting at Atlantic City, it is stated that owing to war conditions, the amount of rail purchased by the railroads during the past year has been much less than usual and consequently the tonnage rolled has been less. The routine work of testing at the mills has been carried out as usual, but there has of necessity been less experimental work connected with rails.

Records of performance in service of different types and weights of rails have been reported as usual and these reports are serving a useful purpose, but it is becoming more and more apparent that general summaries of these records are not going to be of a great deal of value. The difficulty is in the absence of any record of the ton mileage carried by the rail before failure. The reports of failures would be of much greater value if the comparisons in the general summaries could be made on the basis of tonnage over the rails in addition to failures per year or period of years. The general summaries do, however, show the general trend is toward a reduction in number of failures, but care should be used in making individual comparisons based on these summaries.

The severity of the fiber stress produced in the rail in straightening in a gag press is dependent on the length of the portion of the rail over which the stress is distributed at each blow in the gag and also on the amount of inertia of the rail section. Therefore, with the stiffer sections of the recent heavy-weight rails, it is desirable to increase the distance between the supports in the straightening presses. It is probable that the standard distance of 42 inches now prescribed in the specifications will have to be increased to meet the necessities of the heavy rails toward which the railroads are tending.

Some of the railroads that have increased the weight of section, particularly where this is decidedly over 100 pounds per yard, report greatly reduced cost of track maintenance and reduction in number of failures as well as better riding track. One of these roads now has in contemplation a section weighing 200 pounds per yard. While this may be extreme and only to be considered by roads having extremely dense traffic and the heaviest wheel loads, the tendency toward heavier sections seems to be general.

From time to time experiments have been made in the quenching and annealing of rails, sometimes of standard sections and sometimes of sections slightly modified to better meet the stresses incident to quenching. The rails when put in service generally showed markedly greater resistance to abrasion, but some failed due to brittleness in track. There are now in track, at points where the service is particularly severe, quenched and annealed rails which have not proven brittle, although they carry very heavy traffic under severe service conditions on heavy curves. The results of these tests indicate a future for heat-treated rails.

Valuable work has been done by a committee of the American Railway Engineering association in determining the effect of wheel loads of various weights in producing distortion of the rail head. The reported results indicate that marked distortion is produced by weights considerably under those in common use today. The relation of this distortion to rail failures has yet to be determined, but the results already obtained throw considerable light on just what is happening to the rails in track.

Arc Welding Largely Used

Arc-welding is now coming into general use by large manufacturing companies of this country, and at present many large munition manufacturers have installed arc-welding equipment for the making of tools for turning shells. One plant in particular for the past few weeks has been welding electrically on the average of 240 tools a day. Arc-welding equipment made by the Westinghouse Electric & Mfg. Co., Pittsburgh, consists of a 500-ampere motor-generator with a standard-control panel; three outlet panels for metal-electrode welding and one special outlet panel for the use of either metal or graphite electrodes. For the making of tools a preheating oven is used but for ordinary arc-welding operations such an oven is never used.

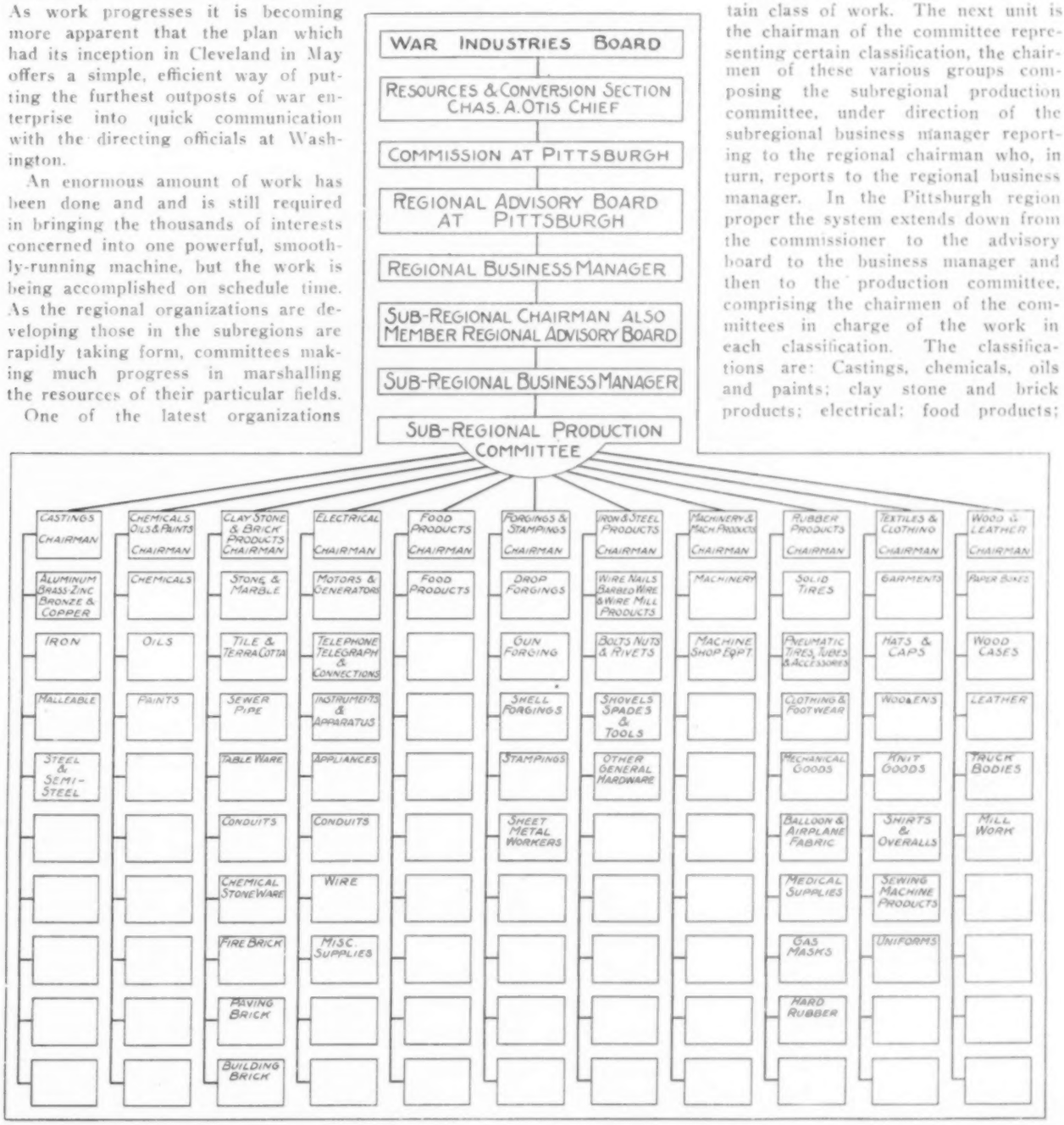
Rapid Progress in Regional Plan

Zone Organizations Are Being Perfected and Are Working Efficiently Under Direction of Resources and Conversion Section of War Industries Board—Country's Business Developed as One Enormous Concern, Says Chief Otis

RAPID progress is being made in the organization of the 20 industrial regional systems under direction of Charles A. Otis, chief of the resources and conversion section of the war industries board. As work progresses it is becoming more apparent that the plan which had its inception in Cleveland in May offers a simple, efficient way of putting the furthest outposts of war enterprise into quick communication with the directing officials at Washington.

An enormous amount of work has been done and and is still required in bringing the thousands of interests concerned into one powerful, smoothly-running machine, but the work is being accomplished on schedule time. As the regional organizations are developing those in the subregions are rapidly taking form, committees making much progress in marshalling the resources of their particular fields.

One of the latest organizations to be perfected is that in Pittsburgh and adjacent territory. The accompanying diagram prepared by the Pittsburgh commission illustrates how the various units are related and linked up with the war industries board. The same system has been or is being worked out in other regions. The smallest unit in the system is the subregional committeeman who devotes his attention to a certain class of work. The next unit is the chairman of the committee representing certain classification, the chairmen of these various groups composing the subregional production committee, under direction of the subregional business manager reporting to the regional chairman who, in turn, reports to the regional business manager. In the Pittsburgh region proper the system extends down from the commissioner to the advisory board to the business manager and then to the production committee, comprising the chairmen of the committees in charge of the work in each classification. The classifications are: Castings, chemicals, oils and paints; clay stone and brick products; electrical; food products;



HOW THE SUBREGIONAL SYSTEM HAS BEEN WORKED OUT BY THE RESOURCES AND CONVERSION SECTION OF THE WAR INDUSTRIES BOARD AND APPLIED IN THE PITTSBURGH ZONE. THE SAME SYSTEM FOR MAKING INDUSTRIAL SURVEYS OF RESOURCES APPLIES IN THE PRINCIPAL ZONE AS IN A SUBREGION, ALL REPORTS FINALLY GOING TO REGIONAL COMMISSIONER

forgings and stampings; iron and steel products; machinery and machine products; rubber products; textiles and clothing; wood and leather. The same system of classification is followed in the subregions.

Through this system the war industries board may quickly determine the resources of the various industries both in stocks and in capacity for production. No difficulties have been encountered in keeping the national board in close touch with the situation wherever the regional system has been organized and its functions explained to those charged with its operation.

In New York the commission for the metropolitan region held its first meeting July 9 when Mr. Otis made a comprehensive survey of the plan and its purposes. He said the war industries board purposes to submit as far as possible the requirements of the government's supply and purchasing agencies to the regional bodies which will make surveys to determine just what can be done, the reports being submitted to the government. He stated that there would be no purchasing by representatives of the government in any regions. He reiterated his impression that as the war progresses the government will be the only buyer and that all industries must be organized along the line of war requirements or be put out of business. One of the principal purposes of resources and conversion section is to help in such reorganization. The fuel and power situations will be studied so that certain districts will not be overloaded with work, while the output of each district is maintained at its maximum.

"The business of the country can be developed as though it were one enormous concern with various departments," said Mr. Otis. "This can be done by organization, and if every one has his position in this business organization, each his duty, and a responsible head in whom the entire situation is gathered, no matter how large, such an organization can be established.

"Everyone is invited to join the organization whether he be a member of any organization or not. It is clearly stated to those assigned to originate the organizations and develop them in their regions that they are to take advantage of all the information they can get.

"The organization is purely voluntary and it is not conneted with the government except as a bureau of information and recommendation. As the business men who compose this organization are sellers and government buyers no other situation can exist.

"When the regions are organized and divided into subregions, as the local men agree and find most effective, they shall meet and recommend the names of three or four men who must give their time, possibly all of it, representing the resources and conversion section in their regions as commissioners. To these men my section will look for information which the representative gains from the business men's organization. They shall in no way interfere with the present chief of the production of ordnance now organized in various districts of the country under this department.

"Helpfulness between districts will be expected. Where an organization is doing a certain work well and another resource must be started to keep up the volume, the successful man will be expected to give all possible information to the one starting in to increase this production."

Reports of progress in the organization of the regional bodies continue, the latest to be completed being that in region No. 17, with headquarters in Milwaukee. August H. Vogel is regional commissioner and the following chairmen have been named: I. R. Boland, Eau Claire; W. R. Chellis; J. E. Shaw, Marinette; Frank H. Smith, Green Bay; F. D. Lake, Menasha; L. M. Alexander, Port Edwards; John C. Kroner, La Crosse; W. F. Windsor, Mauston; Rupert K. Schreiber, Oshkosh; John J. Ben Greese, Manitowoc; Gustav Buchen, Sheboygan; William Mauthe, Fond du Lac; A. C. Lagenbach, West Bend; H. L. Kirsch, Beaver Dam; George McArthur, Baraboo; R. P. Tell, Milwaukee; Don E. Mowry, Madison; H. J. Johnson, Racine; Conrad Shearer, Kenosha.

The organization elected W. D. Kasten, vice president, Wisconsin National bank, treasurer, and each factory in the district will be assessed 10 cents per employe to supply funds for maintaining an office and making investigations. The central office for the entire district was established temporarily in the offices of the Milwaukee county council of defense, with Secretary C. F. Rohn in charge. Frank J. Schmitt will have charge of the Washington bureau of the district. Among those assisting in the organization were Maj. S. M. McFedries, ordnance department; Commander J. H. Rowan, navy department; P. E. Pope, Milwaukee, representing the United States public service reserve, and W. N. Fitzgerald, fuel administrator for Wisconsin.

Ship Construction

In March to June Period Exceeds Any Previous Year

Construction of steel ships in the United States during the fiscal year ended June 30 aggregated 253 seagoing steamers of 1,034,604 gross tons capacity. Seagoing wooden vessels numbered 157 of 213,088 gross tons. The total number of vessels built in that period, as officially returned to the bureau of navigation, department of commerce, was 1622 of 1,430,793 gross tons. In the last four months of the fiscal year, 706,084 gross tons were produced, almost as much as in the preceding eight months. The record of the four months exceeds any previous year's production in American history. The year's output more than doubled Germany's largest output in peace times. While the output of the United Kingdom for the 12 months ended June 30 has not been ascertained, for the 12 months ended May 31, it was 1,406,838 gross tons, or about 70 per cent of its annual output in peace times.

Since the great shipbuilding plants like Hog Island, established through government co-operation, had not begun to add finished ships to the cargo fleets, the year's output as given, is almost exclusively from established private shipyards.

Unfilled Steel Bookings Again Show Increase

An increase of 581,243 tons in the unfilled tonnage of the United States Steel Corp., the first since January, is reported for June, the total at the end of the month being 8,918,866 tons. The aggregate bookings are 2,464,421 tons less than on June 30, 1917, when they were 11,383,287. From April 30, 1916, to date the monthly record of unfilled tonnage is as follows:

Date	Total	Change, tonnage	Change, per cent
June 30, 1918..	8,918,866	581,243+	6.90+
May 31, 1918..	8,337,623	404,259—	4.60—
Apr. 30, 1918..	8,741,882	314,522—	3.47—
Mar. 31, 1918..	9,009,675	232,049—	2.49—
Feb. 28, 1918..	9,288,453	189,400—	1.99—
Jan. 31, 1918..	9,477,853	96,135+	1.02+
Dec. 31, 1917..	9,381,718	484,612+	5.44+
Nov. 30, 1917..	8,897,106	112,569—	1.24—
Oct. 31, 1917..	9,009,675	823,802—	8.37—
Sep. 30, 1917..	9,833,477	573,572—	5.51—
Aug. 31, 1917..	10,407,049	433,115—	4.16—
July 31, 1917..	10,844,164	539,123—	4.74—
June 30, 1917..	11,383,287	503,304—	4.24—
May 31, 1917..	11,886,591	296,492—	2.43—
Apr. 30, 1917..	12,183,083	471,439+	4.02+
Mar. 31, 1917..	11,711,644	134,947+	1.16+
Feb. 28, 1917..	11,576,697	102,643+	0.90+
Jan. 31, 1917..	11,474,054	73,232—	0.64—
Dec. 31, 1916..	11,547,286	488,744+	4.43+
Nov. 30, 1916..	11,058,542	1,043,282+	10.41+
Oct. 31, 1916..	10,015,260	492,676+	5.18+
Sep. 30, 1916..	9,522,584	137,133—	1.42—
Aug. 31, 1916..	9,660,357	66,765+	.69+
July 31, 1916..	9,593,592	46,866—	0.48—
June 30, 1916..	9,640,458	297,340—	3.09—
May 31, 1916..	9,937,798	108,247+	1.11+
Apr. 30, 1916..	9,829,551	498,550+	5.34+

War Turns Golden Gate Into Hive Of Industry

17 Ships Launched, 19 Keels Laid in Day

(Special Correspondence)

SAN FRANCISCO, July 8.—Following the launching of eight destroyers and nine steel freighters aggregating 99,700 tons in the San Francisco bay district July 4, San Francisco and the bay cities added to their achievement by laying keels for eight more destroyers and 11 additional freighters. It is estimated that 3,000,000 tons of merchant and naval vessels will be launched in this district in 1918. This is based on the tonnage launched, 10 vessels contracted for in Oakland, 20 ship ways under construction in Brooklyn basin and plans for 70 more ships.

DEFIANCE, 12,000 tons, one of the four freighters launched at the Alameda plant of the Bethlehem Shipbuilding Corp., was built in 38 working days, a new record in shipbuilding. In comparison with TUCKAHOE, 5500 tons, which was built in 27 working days in an eastern shipyard, government officials estimate that the performance in building DEFIANCE was better than the former record by more than 30 per cent. The three other freighters, each of 11,800 deadweight tons, to leave the ways of the Alameda plant were INDEPENDENCE, VICTORIOUS and CHALLENGER.

Rush Work on More Ships

With speed and precision, blocks for keels for six new vessels were swung into place after the vessels were launched from the Alameda plant. The six new ships will be named TRIUMPH, INVINCIBLE, COURAGEOUS, ENTERPRISE, ARCHER and STEADFAST.

The GUIMBA, YAQUINA and YAMHILL, 9400-ton freighters, were launched from the Moore Shipbuilding Co.'s plant in Oakland.

The MAJOR WHEELER, a 5500-ton steel freighter, and the fifth merchant ship to be launched July 4, slipped from the ways of the Hanlon shipbuilding plant in Oakland. Mr. Hanlon, at the time, received the assurance from Charles M. Schwab, director general of the Emergency Fleet corporation, that additional contracts would be forthcoming and that sufficient steel would be provided to keep his yard busy. Hanlon's is among the smaller yards in this district. It employs about 1500 men, and it is said the yard has not been permitted to work at full capacity because of lack of materials. One way is now vacant.

The Schaw-Batcher yards in south San Francisco contributed the 8800 ton freighter NANTAHALA and a keel for another vessel was laid immediately. The vessel is 680 feet long with a beam of 48 feet, the property of the Emergency Fleet corporation. The keel was laid in February and she will be in service within six weeks.

Launching of the Destroyers

Eight destroyers were launched from the Union and Risdon Iron works units of the Bethlehem Shipbuilding Corp. and the names of the vessels are: BURNS, GRIDLEY, HARDING, MCKEAN, WILLIAMS, CRANE, HART, INGRAHAM.

Four vessels aggregating 29,900 tons were launched from the San Pedro yards. Three of them, WEST GALETA, WEST ZULU and WEST GRAMA, are 8800-ton standardized steel vessels, launched by the Los Angeles Shipbuilding & Drydock Co. The fourth, MONO, is a 3500-ton wooden ship, launched by the Fulton Shipbuilding Co.

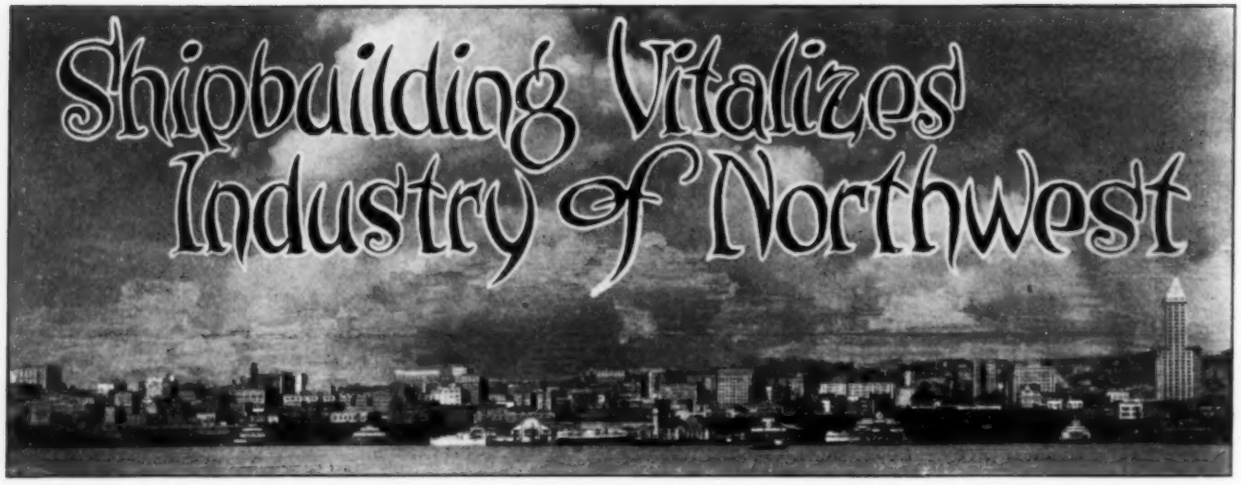
Because a standard size for catalogs and similar literature adds greatly to the convenience and economy in mailing, handling and filing, the National Retail Hardware association passed a resolution at its annual meeting recently to the effect that it endorses the recommendation of the National Association of Purchasing Agents that 7½ x 10⅝ inches be the standard size of such publications.

New Water Route to Free 200,000 Cars

The announcement that the railroad administration has taken over transportation facilities on Warrior river and the lower Mississippi and the appointment of M. J. Sanders, New Orleans, as director, means much to Alabama coal mining and manufacturing interests in this section. It is expected that a large number of self-propelling barges and others with tugs will be placed on the Warrior river and that mines within 20 miles of the river will use the water route to New Orleans and Mobile. The mines near the river will supply not less than 1,000,000 tons of coal per annum for this means of transportation while considerable finished steel and other products will be offered for transportation to Mobile. Coal shipments by water will free 200,000 railroad cars in a year for other uses. It is expected that within three months barges will be arranged for and a regular schedule established between Alabama coal fields and Mobile and New Orleans. Bunker coal in quantity is now being sent to the gulf points.

Index is Ready

The index to volume LXII of THE IRON TRADE REVIEW covering the first six months of 1918 is now ready for distribution. Copies will be sent to all subscribers desiring them.



Plants Rushed, Housing Problem Serious

(Special Correspondence)

SEATTLE, July 13.—Extraordinary efforts now being made throughout the northwest to insure housing accommodations for workers give a fair conception of the steady industrial growth of the section. The Portland chamber of commerce and Portland realty board joint committee on housing is planning a housing campaign financed by business men of the city, and will construct 500 or 600 houses as a first unit. The plan is to sell the homes on easy terms at wholesale prices, plus only necessary expenses. Restriction of returns on capital invested is to be limited to a maximum of 6 or 7 per cent. Industrial concerns in Portland, particularly those having to do with the filling of war orders, are enlarging their plants and getting ready for an indefinite period of activity. This brings the question of housing to a head. The Columbia River Shipbuilding Co., recently awarded a contract by the United States shipping board for fourteen 8800-ton steel freighters, will begin at once construction of two new ways to cost $70,000; Willamette Iron & Steel Works have awarded a contract for a four-story warehouse and the Albina Engine & Machine Works will erect extensive additions to their plant.

Plan New Shipbuilding Plant

Indicating that the near future is to see greater expansion, the United States shipping board is negotiating with the Northwest Steel Co., Portland, for the erection of an entirely new steel shipbuilding plant which will employ 7000 men. The present plant employs 4000. The steel mill of the Pacific Coast Steel Co., to be completed by January, 1919, will add 500 men to Portland payrolls.

The government is making such extensive use of the Puget sound navy yard at Bremerton, Wash., that it has been found necessary to construct at least 350 permanent residences, two large apartment houses and a 400-room hotel under direction of Otto M. Eidlitz, director of housing for the department of labor. The sum of $1,025,000 was recently appropriated by the senate and house conferees for the Bremerton yard, $325,000 of which is to be used for improving the central power plant.

$350,000 *Allowed for Houses*

The housing department of the shipping board has allowed Tacoma, Wash., the sum of $350,000 to aid in housing shipbuilders in that city. The Todd Dry Dock & Construction Corp., in that city, is spending $500,000 in making additions to its plant and providing houses for workers. It is expected that eight ways will be in operation at the plant by September. A foundry and machine shop is to be erected at a cost of $200,000. This means a large increase in the payrolls.

At Seattle new industries are constantly added and the pressure for housing continues unabated. During May permits were issue for 362 residences to cost $463,120 and this rate of building has been maintained for several months. Reasons why this building activity must be increased are apparent. The Skinner & Eddy Corp., which recently took over the plant of the Seattle Construction & Dry Dock Co., expects to have 15,000 on its payroll by Sept. 1, 3000 more men than were employed by the two plants. A large amount of construction work is being done, including the building of a new dock on which will be located coppersmith, pipe, pattern and joiner shops. A plate and anglebending shed to serve two sets of ways 82 x 260 feet, an additional foundry and machine shop 600 feet long, and another building 500 feet long will be constructed. The two machine shops and foundry shed will cost about $150,000 and the dock about $75,000.

The Todd Dry Dock Co., formerly the Seattle Construction & Dry Dock Co., has been incorporated by H. W. Kent, who was vice president and treasurer of the latter concern, and by others. The incorporation is for $1,000,000 and the purposes set forth are to operate dry docks, erect engines and build ships. For the present, however, the main object is to erect a large repair plant for which a site has been obtained on Harbor island. It is planned to operate there three large dry docks and to engage in an extensive ship repairing and engine building business. This is the section of the original company not taken over by the Skinner & Eddy Corp.

Concrete Shipbuilding Increases

Concrete ship construction will soon materially add to the payrolls of Seattle. Mention was previously made of the West Coast Shipbuilding Co., of Everett, Wash., which will construct 7500-ton concrete cargo ves-

sels, barges and ocean-going tugs. Since that time the American Concrete Pipe & Shipbuilding Co. has selected a 12-acre site at Bryn Mawr, on Lake Washington, near Seattle. Treiber & Sheel, naval architects, Seattle, have prepared a tentative plan for the yard and this includes five ways for 5000 to 10,000-ton ships; two ways for 100 to 150-foot barges and a cement pipe plant. This company is headed by L. Y. Stayton, of Tacoma, who has spent 20 years in the manufacture of concrete pipe. The company maintains offices in the New York building, Seattle.

Close Deal for 8-Acre Site

The Inter-Ocean Barge & Transport Co., of Seattle, has just completed a 550-ton concrete scow in a temporary yard at Ballard beach and has closed a deal for an 8-acre site on the Duwamish waterway, Seattle. Plans for a yard are being prepared by Lee & Brinton, who laid out the plant of the Ames Shipbuilding & Dry Dock Co.

Wooden ship construction continues active and up to June 1 district 11, embracing Oregon and part of the Columbia river region, had contributed 28 out of the 67 vessels turned over to the Emergency Fleet corporation. District 8, including Portland and the territory north of the Columbia river, contributed 16 vessels. On July 4 twenty-three wooden ships of 3500 to 4000-ton burden were launched in District 8, in addition to the following steel vessels: One 8800-ton and one 7500-ton, Skinner & Eddy Corp., Seattle; two 8800-ton, J. F. Duthie & Co., Seattle; one 7500-ton, Todd Dry Dock & Construction Corp., Tacoma; one 8800-ton, Northwest Steel Co., Portland.

As a result of the stimulus to the shipbuilding industry pig iron is now being cast from an electrically-operated furnace at Port Moody, in British Columbia, in a plant installed by the Aetna Iron & Steel Co., which has been operating a rolling mill at that point for a year. It is a 6-ton furnace with a daily capacity of 20 tons of pig iron made from cast scrap iron. The American Tug Boat Co., Everett, Wash., has decided to erect a modern machine shop to provide its own repairs and do commercial work. The Willamette Iron & Steel Works, Portland, employing 1800 men, tested out 12 Scotch marine boilers constructed in its shops in June and considers its capacity as 15 boilers each month if sufficient material and the special parts required can be obtained. The Hendricks Mfg. Co., Seattle, which has been turning out many marine engines is to construct a $23,000 addition to its shop to enable it to handle larger orders. The Paragon Tool Co., Seattle, is manufacturing high grade shipyard tools including practically all the tools used in steel ship construction. The Vulcan Mfg. Co., Seattle, recently taken over by Frank Waterhouse & Co., prominent shippers, immediately arranged for an extension to its machine shop and took on a contract with the Skinner & Eddy Shipbuilding Corp. to supply 50 anchor winches and 500 cargo winches with which to equip the large number of new ships being constructed for the Emergency Fleet corporation.

Seattle has been named as one of the Pacific war zone points to expedite industrial war work in the northwest. Prominent commercial organization officials and manufacturers of Seattle, Tacoma, Portland and Spokane met at Seattle June 24 and organized the northwest industrial zone. This action was taken on instructions from Washington and the new organization will be under direction of the war industries board. A. J. Rhodes, president, Seattle chamber of commerce and Commercial club, was named chairman of the northwest zone, which includes Oregon, Washington, Idaho and Montana.

The port of Seattle commission will probably submit to the voters next December the question of constructing two more large port terminals, the cost estimated at $2,441,000. The industrial outlook and the fact that the business of the port is already such that it is considerably congested at all times make these improvements advisable.

Little Export Business

Export business is curtailed, the chief movements in the near future to be the fulfilling of the government agreement with Japan for large quantities of steel that will pass through the port of Seattle and the sending through this port of 12,000 tons of 70-pound rails for the government railroad in Alaska. So far as the export business of private companies is concerned restrictions thrown around it are such as to make it almost nil. The export freight rate was abolished June 25 and the domestic rate applies on all exports, costing the shipper in the east about $16 a ton extra to get his goods to Seattle for overseas shipment. On account of these large increases in freight rates, exporters have been purchasing such steel as they could get out of stock. Nothing has been bought from the mills recently because of the fact that the shipments could not be made in time to avoid the raise of $16 a ton in freight. Some steel bars and sheets are being shipped from stock.

The price of steel bars has been about $3.75 base for export, and freight to Seattle brought the price to $4.10. A limited amount has been shipped, most of it going to Japan.

Prices on copper and brass tubes have been steady for some time, 37c base and 38c Seattle for copper, 34½c base and 35½c Seattle for brass. There is a heavy demand and large amounts are shipped in for use in the shipyards. The bolt market is much curtailed, the manufacturer only being allowed to purchase steel for which he has government orders. Wood stove pipe is largely taking the place of cast iron pipe, the price of which has been $64 per ton, Seattle, including $19 freight.

Shortage of Pig Iron

Priority certificates are now required for coke and pig iron. These certificates must show that the consumer is doing direct government work. There is a shortage of pig iron which is laid to three causes, shortage of labor, shortage of coke and abnormal demand. The shortage of pig iron is 40 per cent. There is no pig iron available except a limited amount of silicon 1.75 to 2.25, $33 base, Birmingham, $46.44 Seattle. No. 1 pig iron still holds at $50 a ton. There is a plentiful supply of local coke but this does not meet all requirements. It is understood that coke is not to be subject to the 25 per cent advance in freight rates and that pig iron may be given the same consideration. However, there was a general demand by consumers that their pig iron be shipped before the rate went into effect.

Transportation has improved, cars coming through from the Birmingham district in three weeks, instead of seven.

Steel scrap ranges in price from $27.50 to $30 and no shortage is in sight. Scrap iron is gradually coming down to the government price, dealers showing a disposition to adopt it. No. 1 foundry, broken cupola size, $34 a long ton and car wheels at $29 a ton.

Prices of steel castings have not changed within the month. They were running slightly above 10 to 45 cents per pound depending on the nature of the casting. They are showing a tendency to stabilize around these figures. There was also a slight upward trend in the price of iron castings a month ago, running a little above 7 to 8 cents but there has been no change since that time.

British Discuss War-Time Problems

Elimination of Pipes in Steel is Attained by Casting the Ingots With the Small End Down—Small-Sized Ingots Especially Adapted for Shells—No Forging Required

BY JOSEPH HORTON

AT the annual meeting of the British Iron and Steel institute which was held in the Civil Engineers building, Great George street, Westminster, recently, many interesting papers were read. The meeting proved exceptionally interesting because of the bearing of subjects discussed on war production. Eugene Schneider, general manager, Schneider & Co., La Creusot, France, was elected president. A new note was struck by Sir Robert Hadfield on the second day in his plea for the small as against the large ingot. At the close of the proceedings a most interesting message from A. F. Shore, of New York, was read by Dr. Hadfield. The report of the council stated that 142 new members had been elected during the year and 57 of the new class of associates had been admitted bringing the total membership to 1994.

Sir William Beardmore, the retiring president, prior to vacating the chair, said that the sequence of the institute's president furnished a symbol of that unity of soul which animated the allies in the great war, and which was the greatest factor in their determination to triumph over the enemy of humanity. All branches of the iron and steel industry have subordinated every question to the dominant duty of supplying the armies of the allies with plenty of munitions.

Blast Furnace Practice

The report of committee No. 2 on blast furnace practice was presented in abstract by Col. Hawdon. Cosmo Johns strongly urged the necessity of putting on record the actual analyses of materials now and in the future so that there might be a progressive record of changes in the important qualities of the ore. T. B. Rogerson pointed out the difficulties which Scotchmen had to deal with through the inferiority of Scottish limestone. They improved their furnaces but the increase in production was not proportionate, because the coke was of poor quality.

"Fuel Economy in Blast Furnaces" was presented by Alfred Hutchinson. G. D. Cochrane presented his paper on "Importance of Coke Hardness", giving a number of additional figures relative to hardness and its results on production at the Ormsby Iron Works. He generally found that when the coke was spongy and soft, more like gasworks coke, that high-coke consumption and inefficient furnace driving resulted. With regard to the question of whether soft coke was really as bad as it was assumed to be, it is known that the softest kind of fuel ever used in a blast furnace is charcoal and when the same ores were worked in two furnaces side by side, as had been done in America with charcoal on the one hand and coke on the other, only two-thirds the amount of charcoal was used as compared with coke, and the issuing gases had a greater amount of carbonic acid from the charcoal furnace than from the coke furnace.

Several grants from the Carnegie research fund in aid of research work were announced on the resumption of the proceedings on the second day. The recipients were Samuel L. Hoyt, Joseph Kilby, George Patchin and John A. Van den Broek. Mr. Hoyt and Mr. Broek have been intimately connected with work in America. Samuel L. Hoyt graduated from the University of Minnesota in 1909, and afterwards obtained the degree of doctor of philosophy at Columbia University, New York. From 1911 to 1913 he attended the Rohal Technical school at Charlottenburg, making a special study of metallography. Since his return to the United States in 1913, he has been in charge of metallographical work at the University of Minnesota. He has carried out several investigations on "Inclusions in Ordnance Steel". A grant of £100 has been made to him by the Council of the Iron and Steel institute to enable him to study "The Foreign Inclusions in Steel, Their Occurrence and Identification."

John A. Van den Broek is an instructor in engineering mechanics at the University of Michigan, Ann Arbor. He was born in Holland and went to the United States when 17 years of age. He graduated in the course of civil engineering from the University of Kansas. At the University of Michigan he largely directs the laboratory for testing iron and steel. He has published valuable original works on "The Effect of Cold Working Upon the Elastic Properties of Steel," and the Council of the Iron and Steel institute has awarded him a grant of £100 from the Carnegie research fund to enable him to continue his research work on "The Elastic Properties of Steel and Alloys".

Sound Steel Ingots

Benjamin Talbot, Middlesbrough, well known in America, presented his paper on "Production of Sound Steel by Lateral Compression of the Top Portion of the Ingot." Cosmo Johns said he admitted the ingenious head, but thought it was only applicable to ingots cast with the large end down. Dr. Hadfield said there was no doubt that for rail work and structural purposes the process would be a success. He doubted its utility for alloy steels such as those used by armament firms which constituted a different proposition.

Mr. Talbot in his discussion, said he did not obtain the surface with the use of brick. The joints between the bricks are apt to lead to small fins which cause a shrinkage crack. The best evidence of success is the fact that the surfaces have passed inspection and the steel made into shells. Obviously the top crop of the ingot is not a commercial product and must be cut away. Some of the segregate can be extruded but it is better to kill it in the top concentrate of the ingot. He agreed with Mr. Law that if satisfactory results were obtained by casting the ingot with the broad end down, there was no object in casting in any other way. Mr. Talbot said he was out to make cheap steel, particularly for the rail trade, and would regret if he had to cast thousands of tons of ingots a week with the large end up, although if Cosmo Johns preferred to adopt that system for that kind of casting he did not see why it should not be done. With regard to the slag used, Mr. Talbot said acid open-hearth slag so far proved the best, and there was no flaking connected with it.

Two papers were discussed jointly, namely a paper by Dr. J. E. Stead, "Notes on Inclusions in Steel," and the paper by N. A. McCance, "Non-metallic Inclusions in Steel." In the course of the discussion Dr. Saniter pointed out that whenever inclusions in steel occurred a decarburized area was usually found around the inclusion. He did not think this could be called the crystallization of the ferrite grains, as it was well known that the decarburized area was due to an excessive percentage of phosphorus. He thought in Mr. McCance's paper there was too much of an endeavor to speak generally without being specific as to the composition of the steel in which the inclusions were found. He was of the opinion that sulphur segregated in a greater degree than manganese and it was only at a temperature near the solidifying point that that the combination took place between the manganese and the sulphur.

Dr. Rosenhain pointed out that lighter bodies would naturally rise to the top. The growing crystals would then push their inclusions in front of them, and the latter would become consentrated in the residual liquid.

An interesting discussion was given by Sir Robert Hadfield who directed attention to the importance of carbon in the effect upon sulphur and the phosphorus. The speaker pointed out also the importance of the size of the ingot as affecting the inclusions. Experiments show that there is less liability for inclusions to occur in small castings than in large ones. Dr. Hadfield said in dealing with certain special steels he was impressed with the question of the size of the ingot. He was certain that with a small ingot, a much better all-around average product could be obtained than with a large one. Undoubtedly, part of the success so long established in connection with crucible steel was partly due to the smallness of the ingot although it was attributed often to the low content of the sulphur and the phosphorus. Dr. Hadfield said his company had made an enormous number of small ingots for shells, without using a rolling mill or a steam hammer and tens of thousands of articles were now being made which never saw the forge or the rolling mill and they had proved the quality of their material.

His company started with a small-sized ingot for making 9.2-inch shells. The ingot was 10 inches diameter and in corrugated form. Tens of thousands of them had been cut up in his shop and he never remembered seeing a single one with inclusions. Of course if the steel was badly teemed a bad result might follow. But if the steel was in the right condition results would be obtained and there would be no need to use forges and rolling mills. Obviously every possible form of economy should be studied, so as to liberate the rolling mills and the forges for other purposes. It is obvious that to produce billets by forging and rolling is an expensive process. It is well known that at the Krupp works in Germany, gun steel is cast from 110-ton ingots. But Krupp's also make the fullest use of crucible steel. The select their metal carefully and use the best products. Open-hearth furnaces in England have been increased from 10 to 20 tons up to 60 tons capacity, and to even more than that in America. According to reports, Germany has formed works committees on discussions at the office and the works. Dr. Hadfield is of the opinion that English manufacturers might wisely follow that example. Possibly the council of the institute might consider the matter with a view to the best practice.

W. Ellis said that for some time past he had been utilizing cast ingots for punches without forging, and had found the cast ingot equal, if not superior, to the forged material. George Carrington said he was convinced that the large ingot for ordinary commercial purposes was not as suitable as the small one. With regard to the use of manganese, Mr. Carrington had been in the habit of using it in the puddling furnace as a cleanser. When the manganese liquified, the slag combined with the sulphur. If a high-manganese pig was used in the puddling furnace, a fair quality of material was obtained.

Most of the afternoon was devoted to three papers, namely, one by J. H. Whiteley, "Effect of Cold Work on the Divorcee of Pearlite," and one by J. Van den Broek on "Effect of Cold Working on the Elastic Properties of Steel." A discussion took place also on the joint paper by Dr. W. Rosenhain and D. Hanson on "A Cause of Brittleness in Mild Steel Boiler Plates."

Ordnance Offices Leased

Edmund A. Russell, division ordnance chief of the Chicago district has leased a six-story and basement building at Superior and St. Clair streets, Chicago. This building contains a total floor space of about 75,000 square feet, which will be occupied by the production, procurement and inspection divisions of the district ordnance department.

Appeal for Pig Iron

Dominion Manufacturers Want Supply Obtained From United States

Toronto, Ont., July 12.—A delegation representing the stove manufacturers of Canada, conferred with the war trade board in Ottawa, July 3, requesting that efforts be made to obtain a sufficient supply of pig iron to enable them to continue business. The board could make no definite promise but assured the delegation that every effort would be made to obtain a supply from the United States.

After considerable delay the Canadian government was given permission for the export from the Curle mine, near Kaslo, B. C., of 5000 tons of manganese ore required by the United States government. It is to be used in eastern plants now engaged in the production of munitions.

A company to be known as the North American Arms Co., Ltd., capitalized at $2,000,000, is being organized to take over the Ross rifle factory at Quebec and manufacture automatic revolvers for the American army. The president will be T. A. Russell, and the vice president, H. C. Scully.

Adam Beck, chairman of the Ontario hydroelectric power commission, announces that important extensions will be made to the system. The government has authorized the expenditure of $500,000 to increase the electrical equipment at Niagara Falls to complete the Chippewa plan for aiding Buffalo plants engaged on munitions. He has informed the United States government that if it supplies the requisite machinery and labor the commission will supply the United States with 200,000 horsepower by the fall of 1919, and increase this by 30,000 horsepower per month until a maximum of 300,000 horsepower was reached. Speeding up on the Chippewa canal has already started. A plant for the development of 135,000 horsepower will be constructed at Nipigon on the Nipigon river, 60 miles from Port Arthur, to supply power to that city and Fort William. This will provide power at a reasonable price for the development of the mineral and pulpwood resources of the district. The Nipigon plant will require an initial expenditure of $3,000,000 and the ultimate cost will be about $5,000,000. Developments at High falls, on the Rideau canal, Eugenia falls on the Severn river and at Rany falls on the Trent river, will also be considerably increased. The total initial expenditure entailed by the plan will be about $8,000,000.

Labor Takes Slap at Government

Machinists at East Cambridge, Mass., Strike While Labor Board is Considering Demands, Paralyzing Work on Destroyers, Then Return With Ultimatum to Federal Mediators—State Demands They be Punished

REPORTS of labor profiteering and "strikes against the colors" continue to be received from various quarters. The boldest defiance of President Wilson's plea to labor and the most flagrant violation of President Gompers' promise to the nation, however, has occurred in East Cambridge, Mass., where approximately 1000 machinists employed by the Blake & Knowles works of the Worthington Pump & Machinery Corp., walked out and tied up the navy department's program for building destroyers. No strike in recent months so aroused a state and stirred the officials of the navy department. The loyal citizens of Massachusetts and the press, voicing the concensus of opinion, denounced the strike as contemptible and cowardly and called for severe punishment for the offenders.

Among the strikers were approximately 100 men who had obtained exemption from military service by their pledge to continue faithfully at work on the production of war material, and about 10 enemy aliens. One Boston newspaper demanded that the former be sent forthwith to a training camp, the aliens interned, and that "the names of those remaining on strike be published side by side with the casualty lists from France."

The industrial situation in Greater Boston has reached a critical state owing to the strike. Requests for changes in working conditions were presented by the men and the difficulties were submitted to the war labor board by the employes and the corporation. A hearing occurred in Washington June 10 before a section of the board, both sides signing an agreement to abide by the decision. No decision has been rendered and July 5 the men voted to strike on July 8, no further warning having been given to the company. The men quit in the face of popular disapproval of their course and against the advice of William H. Johnson, president of the International Association of Machinists. With Johnson warning the men that they were courting serious trouble and the storm of indignation growing, the men returned to work July 11 with the understanding that if the labor board did not decide their case before July 17, they would again strike. They demand an 8-hour instead of a 10-hour day and time and one-half for overtime work.

The strike is particularly aggravating from the fact that workers were employed in making the pumps for 150 destroyers the government is seeking to put into commission at the earliest possible date at the urgent request of Vice Admiral Sims.

While labor conditions in other sections of the country are comparatively quiet, trouble seems to have singled out Massachusetts as its stage. A strike was declared at the Lynn plant of the General Electric Co., where approximately 10,000 men quit war work. Between 500 and 600 employes of the Smith & Wesson Co. quit work at Springfield, the company being engaged in the manufacture of small arms for the government.

In the Ohio field, jurisdictional disputes between the union employes building the Cincinnati courthouse have become so frequent taxpayers are protesting on the grounds that disputes have cost them thousands of dollars. Patternmakers in Cincinnati quit while an appeal for them to remain at work was enroute from Washington. The men wired back that their employers had discharged them.

Everywhere there is a growing disposition to have the government put the malcontents and the pro-German labor profiteers in training camps and to fill their places so far as is practical with women, who are demonstrating aptitude in industrial occupations.

Women Supplanting Labor Obstructors

WORK on the new $2,000,000 court house in Cincinnati is again at a standstill by reason of a jurisdictional dispute between members of various labor unions engaged in its construction. The delay on this building due to labor disorganization is referred to by Cincinnati taxpayers as "one of the greatest monuments in Ohio to the tyranny of labor unions." Jurisdictional disputes have arisen frequently during the construction of the court house and they are said to have added hundreds of thousands of dollars to the cost of the building and caused a feeling of wrath on the part of the citizens.

The department store drivers of Cincinnati who went out on a strike several weeks ago capitulated and applied for their jobs. The strike educated the merchants to use the parcel post, it being ascertained that deliveries by parcel post cost an average of 7 cents a package while delivery by truck cost 11 cents.

The Cincinnati patternmakers who were engaged in making patterns for parts for tanks, submarines, destroyers and merchant vessels are still out, having quit despite the government's appeal to them to remain at work pending a decision on their demands. Six pattern shops are effected. Lieut. George W. Burns, ordnance department, is acting as conciliator. The business agent of the union received a telegram from the labor policies board of the war department urging him to keep the men at work, and he replied that they had just

been discharged by their employers for starting work 30 minutes late. The patternmakers had been receiving 70 cents an hour, working 52½ hours a week and time and one-half for overtime. They demanded 75 cents an hour, a 44-hour week and double time for overtime.

* * *

WHILE the steelworkers in the Mahoning valley were pledging themselves to do an honest day's work and stick to the job so long as the war lasts, the molders were insisting that their employers put in effect an 8-hour day, regardless of war requirements. Plants in the valley are planning to inaugurate the employment of women in mechanical positions where they have not been used and to increase the number where they have been demonstrating their efficiency.

Puddlers at the Girard plant of the A. M. Byers Co. who asked union recognition as a result of their affiliation with the Amalgamated Association of Iron, Steel and Tin Workers have returned to work pending decision of the issue by the federal labor conciliator. About 500 men at the plant joined the union. The company refused to recognize it. Some four years ago the puddlers lost a seven-months' strike to obtain recognition of their union. They were then affiliated with the Sons of Vulcan.

Demands for an eight-hour day and 75 cents per hour with time and a half for overtime have been made by the machinists in Washington, Pa., who threaten to strike July 19.

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A SPECIAL committee of the Chicago branch of the National Metal Trades association has been investigating the subject of women workers with the result that it will shortly report a plan for preliminary training, which it is believed will materially insist in narrowing the margin of men employes.

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ONE of the largest strikes of the week was that of employes at the Lynn, Mass., plant of the General Electric Co., who walked out July 15, and one of the most significant features of the situation was that the men quit without formulating definite demands on the company. According to their leaders, 10,000 went on strike, all of whom were employed in the manufacture of war material.

The men are not unionized, the leaders having induced them to quit with the plea that if they did so their wages would be increased and working conditions "improved". Approximately 13,000 persons were employed in the plant.

Members of the Metal Trades Alliance employed in the Schenectady shops of the company voted to uphold the strikers in the Lynn plant "to the extent of a strike, if necessary".

Another "strike against the colors" occurred at the plant of the Smith & Wesson Co., Springfield, Mass., where between 500 and 600 machinists quit work July 12 following the refusal of the company to grant demands for higher wages, improvement in working conditions and the reinstatement of several shop stewards who had been discharged. The plant is devoted entirely to the production of small arms for the government, and the strike was called before federal mediators could consider the case. Union officials estimated that 95 per cent of the workers were out but this was denied by the company.

Eight hundred employes of the Saco-Lowell shops, Newton Upper Falls, Mass., went out on a strike July 8, those on a straight salary basis asking for 15 cents an hour more while those on piece work asking for an increase of approximately 25 per cent. The company offered to grant an increase approximating 3 cents an hour for all workers, but the offer was refused.

The Yale & Towne Mfg. Co., Stamford, Conn., voluntarily has granted a 15 per cent increase in wages to its 4200 employes. This is the third general increase since November, 1915, and the new rates are approximately 52 per cent higher than the wage schedule then in effect.

What Wilson Said

"AND I do hereby urge upon all employers and employes within the United States the necessity of utilizing the means and methods thus provided for the adjustment of all industrial disputes, and request that during the pendency of mediation or arbitration through the said means and methods, there shall be no discontinuance of industrial operations which would result in curtailment of the production of war necessities."—From President Wilson's proclamation of April 8, 1918, establishing the national war labor board.

Sheet Wages Again Raised; Tinplate Unchanged

Representatives of the Amalgamated Association of Iron, Steel and Tin Workers and the National Association of Sheet and Tin Plate Manufacturers met recently in St. Louis for the bimonthly wage adjustment, to apply in July and August. It was developed that the average sales prices of shipments for the May-June period were $5.15 per 100 pounds for 26, 27 and 28-gage black sheets and $8 per base box on tin plate. This means an advance of 5 cents per 100 pounds on sheets and a continuation of the same price on tin plate. This advance means a wage raise of 1½ per cent on the base rate for sheet operatives. Tin plate workers will receive the same wages in July and August as before. The high price for sheets was $5.50 and for tin plate $8.60, both attained the last two months of 1917.

Combats Rent Profiteers

At New London, Conn., a method has been devised to afford industrial workers relief from profiteering landlords. This plan is recommended by Felix Frankfurter, chairman of the labor policies board, who thus outlines it:

"First, a committee was formed of employers of workers and representatives of the workers themselves to which was added public spirited lawyers, real estate men, and other men of excellent reputation for fairness. This committee, wishing to divide its labors so that the burden would be heavy on no one, delegated to many subcommittees or adjustment boards of three, selected from its membership, the task of hearing the complaints of tenants who felt themselves the victims of extortionate rents and unfair practices.

"One of these adjustment boards holds a session almost every day in every week. If the complaint brought appears to be just, the adjustment board requests the landlord to answer, preferably in person. If the landlord refuses to answer, for he is under no legal compulsion, or if he refuses to adjust fairly a plain case of selfish and unpatriotic rent extortion or other hardship put upon the war worker, then the committee, without comment of any nature, will publish the facts so that public opinion itself may pass judgment upon the house owner.

"It is probable that when the remedy is applied locally and a voluntary adjustment board of the kind described is established with intimate knowledge of local conditions and with a membership which will convince all of its fairness and of its determination to drag abuses into the light, 90 per cent or more of all complaints may be settled without publication of the facts."

Thirteen manufacturers of Connecticut, among them the Pratt & Whitney Co., the Colt's Patent Firearms Co., the Hartford Electric Light Co. and the Underwood Typewriter Co. have agreed to release as many of their employes as possible to help handle farm problems when they arise. An arrangement by which the factory employes are paid by the manufacturers who in turn receive the wages allowed by the farmer is included in the plan.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

CHARLES B. CUSHWA, general superintendent of the Mahoning division of the Sharon Steel Hoop Co., comprising the Haselton and Lowellville plants near Youngstown, has resigned, effective Sept. 1. His plans for the future or who will be his successor, have not been announced. It is understood that Mr. Cushwa will be affiliated with another plant in that district. Mr. Cushwa came to the Youngstown Iron & Steel Co., then the Youngstown Iron & Steel Roofing Co., in 1902 from the National Tube Co., Pittsburgh, to assume charge of construction and operation. The extent of the plant was then limited to four sheet mills, one four-foot lathe and one 10-foot corrugator. Under his supervision the plant has been developed into a modern and complete iron and steelmaking establishment, self-contained from blast furnaces to finishing mills. During the entire 16 years of his management, the plant has been wholly free of labor troubles. Mr. Cushwa is a director of the Sharon Steel Hoop Co., which some time ago absorbed the Youngstown Iron & Steel Co., and also of the Commercial National bank, Youngstown.

J. H. W. Mackie, formerly assistant sales manager of the Saxon Motor Corp., has been appointed general sales manager.

Carl H. Snyder, formerly with the Steel Co. of Canada, Ltd., at Hamilton, Ont., is now affiliated with the Buffalo Bolt Co., as assistant superintendent of its plant at North Tonawanda, N. Y.

W. J. Brown has been made New York representative of the Bethlehem Steel Bridge Co., and the Bethlehem Shipbuilding Corp., Delaware corporations. His headquarters are 111 Broadway.

A. R. Lulloch has been appointed secretary of the Springfield, Mass., branch of the National Metal Trades association to succeed L. R. Jette who has entered the United States merchant marine.

Edward F. Carry, president of the Haskell & Barker Car Co., has resigned as director of operations of the shipping board to become chairman of the port and harbor commission.

Wesley Martin, former assistant superintendent of two munition shops of the Bethlehem Steel Corp., Bethlehem, Pa., has been made general superintendent of the Symington-Anderson munition plant at Chicago.

Robert M. Gregory, who for 12 years has been connected with various motor car concerns in Michigan, recently was named head of the purchasing department for the Lane Motor Truck Co., Kalamazoo, Mich.

John F. Kane, assistant secretary of the Pullman Co., recently was elected president of the company to succeed A. S. Weinsheimer, deceased. He has been connected with the company since 1901, when he entered its employ as a telegraph operator.

Ralph O. Pinkerton, who has been affiliated with the Jones & Laughlin Steel Co., Pittsburgh, for some time, has been made assistant paymaster of the Neville island ordnance plant being built by the United States Steel Corp.

Graham Macfarlane Jr., who before he resigned to enter military service was secretary and treasurer of the Red River Iron Works, Clarksville, Tenn., has received a commission as lieutenant of engineers. He is now stationed at Camp Lee, Petersburg, Va.

George N. Moore has resigned his connection with the Robeson Process Co., to become affiliated with the Marden, Orth & Hastings Corp., 61 Broadway, New York. Mr. Moore will specialize on marketing a liquid and dry binder for foundry purposes which has recently been developed by the Marden, Orth & Hastings Corp.

G. F. Danielson, former head of the pressed steel department of the Youngstown Iron & Steel Co., Youngstown, O., and of its successor the Sharon Steel Hoop Co., has been placed in charge of the newly installed pressed steel department of the Truscon Steel Co., Youngstown, O.

J. Malcolm McIntyre, of Montreal, has been elected a director of the St. Lawrence Bridge Co. to fill the vacancy caused by the death of the late Charles Cassils. He is also a director of the Dominion Bridge Co., Montreal Tramways & Power, Ltd., the Dominion Copper Products Co., and other important corporations.

J. F. MacKay, business manager and treasurer of the *Toronto Globe* for the last 15 years, has resigned his position to become treasurer of the Russell Motor Car Co., Toronto, Ont. He has also been appointed a director of two subsidiaries of the Russell company, the Canada Cycle & Motor Co. and the Machine & Stamping Co.

Stephen C. Mason, secretary of the McConway & Torley Co., Pittsburgh, was recently elected president of the National Association of Manufacturers, in which organization he will represent the railway supply industry. He has been affiliated with some branch of railroad work all his life, commencing in November, 1880 as station agent in his home town, Lyndonville, Vt., and for the last 22 years has been affiliated with the McConway & Torley Co.

Joseph H. Frantz, vice president of the Columbus Iron & Steel Co., Columbus, O., has been appointed federal fuel administrator for Ohio. He succeeds Homer H. Johnson, Cleveland, who recently retired. Mr. Frantz is likewise president of the North American Steamship Co., and holds the office of vice president of the Ohio Manufacturers' association. He has served on the advisory committee of the Ohio fuel administration and was recommended for this latest appointment by the retiring fuel administrator.

Thomas Craig, who has been appointed general manager as well as director of the North American Arms Co., Ltd., which will manufacture automatic revolvers for the United States government at the former Ross rifle plant at Quebec, was general manager of the latter company until it was closed down after it was taken over by the Canadian government. He was associated with the Ross Rifle Co. since 1903, during the period when it filled large contracts for the government on rifles and bayonets.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

CHARLES H. EIB, manager of sales in the Chicago district for the Republic Iron & Steel Co., has resigned from that position to assume a responsible place with the Pettibone, Mulliken Co., Chicago, manufacturer of frogs and crossings, assuming his new duties July 15. Mr. Eib has been in the Chicago office of the Republic for 19 years, ever since the Brown-Bonnell Iron Co. was taken over by that interest. He had been with the latter for four years when the change was made. He advanced from a minor position to manager of the Chicago office, taking the latter position Jan. 1, 1917, on the resignation of Dwight L. Guthrie. He will be succeeded by H. W. Craig, of the Chicago office, who has been next in line. Mr. Craig also has been wtih the Republic for 19 years and has progressed steadily to his present place through intimate knowledge of the business and the Chicago field.

Robert G. Jeffrey has resigned his connection with the Empire State Steel Products Co., 15 Park Row, New York.

Eugene E. Lewis has resigned as vice president and director of the Timken Detroit Axle Co., Detroit, to become assistant to Edward R. Stettinius in Washington.

L. C. Sprague, formerly with the H. W. Johns-Manville Co., New York, has been appointed special representative for the Chicago Pneumatic Tool Co., in New York.

A. S. Goble has been appointed sales representative for the Standard Steel Works and the Baldwin Locomotive Works at St. Louis, succeeding C. H. Peterson who has been transferred to the Chicago office as western representative.

W. H. Foster, president of the General Fireproofing Co., has been elected chairman of the Youngstown, O., division of the resources and conversion section of the war industries board. This commission has jurisdiction over the Shenango valley, in which Sharon is located, and the Mahoning valley, in which are Youngstown, Niles and Warren. The territory comprises four counties, namely Mercer county, Mahoning, Trumbull and Columbiana counties, Ohio.

James H. Hughes, who on July 1 became affiliated with the Timken Roller Bearing Co., Canton, O., has been appointed manager of the steel and tube department. He served the Carnegie Steel Co. in various capacities for 14 years and since Jan.

JAMES H. HUGHES

1, 1913 has been that company's resident representative in Canton where he also represented the Illinois Steel Co., and the Tennessee Coal, Iron and Railroad Co.

Arthur W. Lye, formerly superintendent of rolling mills, has succeeded R. Tencher, resigned, as general superintendent of the Keystone Steel & Wire Co., Peoria, Ill. D. F. Roe, formerly superintendent of the research department, has been appointed superintendent of rolling mills. Mr. Roe is succeeded by J. L. Schneler, formerly chief chemist, who in turn has been succeeded by Henry Sommer, chemist.

B. L. Weaver, who has been connected with steel works operation for nearly a quarter of a century, latterly as superintendent of the steel foundry department of the Steelton, Pa., plant of the Bethlehem Steel Corp., resigned recently to assume charge of the locomotive plant of the Vulcan Iron Works at Wilkesbarre, Pa. Prior to taking charge of the steel foundry, he was assistant to the superintendent of the frog switch and signal department.

Richard P. Tell, president and general manager of the National Brake & Electric Co., Milwaukee, and head of the Milwaukee Metal Trades and Founders' association, has accepted appointment as chairman of Section 16, comprising Milwaukee and Waukesha counties, of District No. 17. This section is regarded as the most important in the Wisconsin district. August H. Vogel, Milwaukee, is chairman of District No. 17, which is divided into 19 sections. Each section has perfected its organization and is now operating under the regional districting plan for war work.

Frank H. McMasters, chief clerk at the Shenango plant of the American Sheet & Tin Plate Co., has been appointed chief clerk of the ordnance department of the United States Steel Corp. He will be stationed at Neville island after July 1. William E. Baer, formerly of New York, has been appointed auditor for the government in connection with the Neville island plant, with offices in the Union arcade, Pittsburgh. His duties will consist of checking accounts with the auditors of the Steel corporation before approving them for payment by the government.

Harry M. Moulder, formerly of the National Screw & Tack Co., has been made district manager of the Falls River Co., Kent, O., in its recently opened Chicago office in the Otis building, 10 South La Salle street. Other organization changes follows: R. M. Trayte has been placed in charge of Cleveland territory; the Crowther Co., Harrison building, Philadelphia, in charge of Philadelphia district; Omer Cox, in charge of San Francisco territory; Sands & Cox, Los Angeles; Strimple & Cox, Seattle; Jones & Cox, Salt Lake City, and Turnbull & Cox, Denver; H. Temple Barber continues in charge of the company's Detroit office.

Trade Commission's Future in Doubt

Submerged Order of President Delegating Coal and Coke Accounting to Fuel Administration May be Significant—War Industries Board May be Assigned Iron and Steel Cost Section—Profiteering Report Displeases

WASHINGTON, July 16.—In the transfer of the coal and coke cost accounting section of the federal trade commission to the jurisdiction of the fuel administration, a move is seen by which it may be likely the steel and iron cost division will be assigned to the war industries board and the entire commission dissolved for the period of the war or at least reduced to the status of a mere perfunctory board of advisers. This is one of the results of the powerful Overman bill. The possibility of disintegration of the trade commission is being hailed with much glee in some quarters.

The transfer of the fuel cost section was ordered on July 3 by the President but the step was not announced until July 10 and then only in a guarded and limited way. In an executive order he decreed "all records, reports, files, copies of contracts, correspondence, papers and proceedings on file or deposited with the federal trade commission relating to coal and coke" be transferred, along with the personnel having the records in charge, to the fuel administration. There they are to remain for a period not exceeding six months after the proclamation of peace, unless otherwise ordered. The communication also directs the fuel administration to administer certain sections of the act creating the commission and provides all coal and coke dealings with the commission now be carried on with the administration.

May Form Steel Cost Branch

If the President's action is an indication, then it may be expected that the steel, copper, nickel, etc., cost sections of the commission will be divorced from that body and transferred to the war industries, being assigned either to the price-fixing committee of the board or to the individual divisions having the specific questions in charge. This would mean creating a large cost section under Robert S. Brookings, chairman of the price committee, or a steel cost branch under J. Leonard Replogle, director of steel supply, a copper cost bureau under Pope Yeatman, in charge of nonferrous metals, etc. By assigning petroleum records and personnel to the fuel administration, meat and food files to the food administration, and placing several other branches in other responsible departments of the government, the President could obliterate the commission for the period of the war.

In the absence of official explanation as to why an apparent attempt was made to conceal the President's action, speculation provides some interesting conjectures. One is, and this opinion is quite freely expressed, that the President, long dissatisfied with the activities of the commission and the reputation it has won for itself, was much displeased with the profiteering report to the senate, and, as had been intimated when the Overman bill was still in debate, decided the commission's activities were really lost motion and that its functions should be assigned to departments which would use them only as needed. Had the President's order been given to the press, within four or five days after the profiteering report had been made, the chances are the sensation and publicity would have been great, something the President did not desire.

The order was carried in an inside page of the *Official Bulletin* on July 10, one week after the President signed it. The *Bulletin*, published by the committee on public information, has a limited circulation chiefly among government officials and departments, including post offices where they are supposed to be at the convenience of the public. The news division of the committee, which usually hands out the news releases from the White House, claims it never knew such an order was in existence until it appeared in the *Bulletin*. With the careful check being kept on Washington news these days, however, it is almost impossible for such important matters to escape unnoticed.

The opinion has been expressed that the federal trade commission may not be wholly disorganized because the President, in reorganizing the war industries board, specifically stated that the commission, through its chairman, should have representation on the price fixing committee of the board. However, should the President order the steel, copper, etc., cost sections transferred to the board there is nothing to prevent him from still further reorganizing the board's committees and leaving the trade commission out of it entirely. William B. Colver, chairman of the commission, represents it on the price committee. Mr. Colver, who was also of the pulp and paper section of the board because of his familiarity with that situation through the work of the commission, has resigned from this post. Whether he was asked by the President to give up the new place and stick to his job in the commission, has not been made clear.

How Transfer Order Reads

The provisions of the President's order transferring the section to the fuel administration direct:

"1. That all records, files, reports, copies of contracts, correspondence, papers and proceedings on file or deposited with the federal trade commission relating to coal or coke, and under and in compliance with the provisions of section 25 of said act approved Aug. 10, 1917, or the orders, rules and regulations of the United States fuel administrator (excepting such as relate to costs of coal-mine operations and to general research into the coal industry) be transferred forthwith from the federal trade commission to the United States fuel administration.

"2. That that part of the personnel of the federal trade commission engaged in such activities hereinabove described and now transferred is hereby detailed or assigned to the United State fuel administration.

"3. That the books, correspondence, records, and papers in any way referring to transactions of any kind relating to the mining, production, sale or distribution of coal or coke and not hereby transferred, shall at all times, be subject to inspection by the United States fuel administrator and by his duly authorized agents, examiners, employes, assistants, and subordinates, together constituting the governmental organization called the United States fuel administration.

"4. That all persons, partnerships, and corporations engaged in the production or distribution of coal or coke shall promptly furnish, whenever called for, to the United States fuel administrator, or his duly authorized agents, examiners, employes, assistants, and subordinates, any data or information relating to the business of such persons, partnerships, or corporations engaged in the production or distribution of coal or coke.

"5. That the said United States fuel administrator is hereby authorized to procure information in reference

to the business of coal and coke producers and distributors in the manner provided for in sections 6 and 9 of the act of congress approved Sept. 26, 1914, entitled, 'An act to create a federal trade commission, to define its powers and duties, and for other purposes,' and said United States fuel administration, acting through the United States fuel administrator, or his duly authorized agents, examiners, employes, assistants, and subordinates, is hereby authorized and empowered to exercise all the powers granted to the federal trade commission by said act approved Sept. 26, 1914, for the carrying out of the purposes of this order."

No Pig Iron Priorities to be Issued

WASHINGTON, July 16.—While separate instructions from Edwin B. Parker, priorities commissioner of the war industries board, and joint instructions from him and J. Leonard Replogle, director of steel supply, have been issued to provide for the production and requirements of pig iron as well as of iron and steel products, the trade's attention is called to the fact that the priorities committee exercises no control over the blast furnace output. This is being handled by J. C. McLauchlan, chief of the pig iron section under Mr. Replogle, and H. G. Dalton, chairman of the subcommittee on pig iron, iron ore and lake transportation of the American Iron and Steel institute, and, in some instances, Leonard Peckitt, eastern representative of the committee.

Attention of the trade to the fact that priority certificates are not being issued on pig iron, is called in a letter sent out last week by Director Replogle. This letter said:

"It has been decided not to issue priority certificates on pig iron, but in the absence of instructions from the director of steel supply to the contrary, producers of pig iron will distribute their product in accordance with the schedule of purposes entitled to preference treatment, outlined in the war industries board resolutions of June 6, 1918, shown as 'Exhibit A' in the attached circular. In all other respects, procedure as outlined in this circular should be adhered to."

Inquiries for certificates for pig iron which have been sent to Judge Parker's division or other government departments are referred to Mr. Replogle and this acknowledgement is made:

"Your communication with reference to your needs with respect to pig iron is received, and has been referred to the director of steel supply, war industries board building, Washington, who has the distribution of this commodity in hand.

"Should it be necessary to refer to the matter again, your communications should be addressed to him as above."

The circular referred to in the letter from Mr. Replogle is the statement which was announced jointly by him and Mr. Parker. This statement, "exhibit A" of which is the resolutions of June 6, was published in THE IRON TRADE REVIEW, of last week. In this connection the trade's attention is called to the paragraph described as "6. Exports" as carried in that statement. That paragraph has been altered by the steel director and priorities commissioner to read as follows:

"6. Exports. No application for a license to export iron or iron and steel products (save on direct orders of the United States and its allies) should be made of the war industries board unless the orders are (1) covered by priority certificates Class AA, Class A or Class B, or (2) covered by a permit signed by the director of steel supply."

All outstanding copies should be corrected accordingly. The changed phraseology, made by the war industries board, is in order to prevent any export shipments of steel unless covered by priority certificate or by written permit.

Restrict Farm Tool Types

WASHINGTON, July 16.—Left-handed farmers must become ambitextrous to do their best toward winning the war, for the manufacture of left-handed plows has been ordered discontinued by the conservation division of the war industries board. It is rule No. 1 in a schedule of 68 just issued by the department, barring the manufacture of certain kinds of plows and modifying the construction of others, the purpose being the elimination of unnecessary material and thus conserve it for more important purposes.

Prior to the marketing of any new types of farm implements the manufacturers are asked to take the matter up with the conservation division, submitting reasons for changes in construction. If the reasons establish sufficient economic value or necessity, permission to manufacture will be given. It also is obligatory on the part of manufacturers to maintain an adequate supply of repair parts for all types and sizes of implements becoming obsolete through the operation of the new rules.

The regulations apply to the following implements: Chilled, steel, Lister, riding, tractor and horse-drawn plows; planters and drills; stalk cutters; peg tooth and disc harrows; shovel, disc and riding cultivators.

Certain sizes of material now used in the manufacture of implements the continuation of which is forbidden may be used in other sizes on which no restrictions have been placed, thus avoiding unnecessary loss. The regulations are to go into effect Dec. 31, 1918.

Treasury Joins in Barring Middleman's Services

Washington, July 16.—The treasury department has joined the bureau of supplies and accounts of the navy and the Panama canal bureau of the war department in making the middleman less and less in favor in Washington and to see that government contracts are handled directly between the parties concerned. L. S. Rowe, acting secretary of the treasury, has issued an order that no one is to be received as a contractor unless he is a manufacturer of, or regular dealer in, the articles which he offers. In his order to the officials and employes of the treasury, Mr. Rowe directs that all contracts made by them in behalf of the treasury or any of its bureaus are to contain this provision:

"The contractor expressly warrants that he has employed no third person to solicit or obtain this contract in his behalf, or to cause or procure the same to be obtained upon compensation in any way contingent, in whole or in part, upon such procurement; and that he has not paid, or promised or agreed to pay, to any third person, in consideration of such procurement, or in compensation for services in connection therewith, any brokerage, commission, or percentage upon the amount receivable by him hereunder; and that he has not, in estimating the contract price demanded by him, included any sum by reason of any such brokerage, commission, or percentage; and that all moneys payable to him hereunder are free from obligation to any other person for services rendered, or supposed to have been rendered, in the procurements of the contract. He further agrees that any breach of this warranty shall constitute adequate cause for the annulment of this contract by the United States, and that the United States may retain to its own use from any sums due of or to become due thereunder an amount equal to any brokerage, commission, or percentage so paid, or agreed to be paid."

Power Plant Fuel Saving Plan is Adopted

Washington, July 16.—The government's plans for fuel conservation are developing favorably, one of its most recent features being the adoption by the fuel administration of a comprehensive program for economic operation of power plants, following a conference of state administrative engineers in Washington. The engineers thus far appointed by the fuel administration include Thomas R. Brown, Pitsburgh, for western half of Pennsylvania; George R. Henderson, Philadelphia, for eastern half of Pennsylvania; Edward N. Trump, New York, for state of New York; W. R. C. Corson, Hartford, for New England, and Charles A. Cahill, Milwaukee, for Wisconsin.

The national program will extend into all states east of the Mississippi, and include Louisiana, Missouri and Minnesota. An administrative engineer will be appointed for each of the states.

The slogan of the campaign is "Maximum production with minimum waste". It is believed that from 25,000,000 to 50,000,000 tons of coal can be saved each year by correct operation of steam power plants, using present equipment. It is considered most important that all existing fuel conservation committees, committees of chambers of commerce and national defense, manufacturers' associations and other bodies be continued in full force.

The administrative engineer in each state will work under the supervision of the federal administrator. No separate or new organization is contemplated, but sufficient addition to the working force in each state will be made to insure efficient execution of the new function. The plan calls for the inspection of every power plant in the country by experts capable of offering helpful suggestions.

Capital Odds and Ends

WASHINGTON, July 13.—Graphite crucibles have been placed upon the list of restricted imports by the war trade board. All outstanding licenses as to ocean shipments have been revoked after July 15, and no licenses for importation will be granted after that date for the remainder of 1918. Imports of graphite have already been prohibited, the object of this restriction being to develop an adequate supply within the United States.

* * *

The agriculture department's bureau of markets is experimenting with designs to determine a type for combination heater and refrigerator cars. The heater equipment is to be installed to protect perishable freight in the winter.

* * *

According to the department of agriculture, there are more than 2800 tractors in use on Pennsylvania farms. Like Ohio, Maryland and other states the Pennsylvania state government has purchased several tractors and is hiring them out.

* * *

A new modification of the coke schedule announced by the fuel administrator fixes the figure of $8.25 per ton for 72-hour selected foundry coke made in beehive oven at the plant of the New Castle Coal Co., New Castle, Jefferson county, Alabama, effective June 28.

* * *

Charges on imported pyrites ore, in carloads from Pensacola, Fla., to Gulfport, Miss., have been found unreasonable by the interstate commerce commission, and reparation has been awarded in the complaint of the Gulfport Fertilizer Co. against the Louisville & Nashville railroad.

* * *

Announcement has been made of the appointment of Maj. Byers H. Gitchell, under detail to the office of Secretary Baker, as chief of the industrial relations section for the bureau of aircraft production, succeeding Charles P. Neill, who resigned to become chairman of the railroad board of adjustments No. 1.

* * *

Evans Woollen, federal fuel administrator for Indiana, who is president of the Fletcher Savings & Trust Co., Indianapolis, will direct the bureau of state organizations of the fuel administration during the absence of Walter E. Hope, who has temporarily returned to his law practice in New York.

* * *

Active among the officers and committeemen of the Potato Association of America, devoted to the interests of potato growers which has established headquarters in the Metzerott Bldg., Washington, D. C.; are H. E. Horton, of the American Steel Wire Co., Chicago, and F. H. Douthitt, potato machinery manufacturer of Clinton, Iowa.

* * *

An agricultural section of the division of traffic has been created by the railroad administration, to give particular attention to the relations between the department of agriculture and the railroads to aid the general agricultural development of the country. J. L. Edwards of Atlanta, Ga., is manager with office in the interstate commerce building, Washington.

* * *

A rate legally applicable on brass plated or coated iron rods in carloads from Wallingford, Conn., to Tacoma, Wash., has been found to have been unreasonable by the interstate commerce commission which has authorized the defendants to waive undercharges, in the case of F. S. Harmon & Co., Tacoma, Wash., against the New York, New Haven & Hartford and other railroads.

* * *

Navy contractors are advised, through a statement issued by Paymaster General McGowan, "that in all cases in which the contract price includes delivery to the navy yard or naval station, unless specifically otherwise stated in the contract, no additional allowance can be made to contractors on account of the increased freight rates effective June 25, 1918."

* * *

Bids are being received by the bureau of industrial housing and transportation of the department of labor for the construction of some 85 houses in Charleston, W. Va. This is one of the first projects under the general housing plan to be gotten under way by the department. The navy's new armor plate and projectile plants and one of the army's gun powder factories are located at Charleston.

* * *

An express and mail section of the division of traffic has been created by the railroad administration. This division is to give its attenton to all matters in connection with the transportation of express traffic and mails. F. S. Holbrook, formerly vice president of Wells Fargo Express Co., has been appointed manager, with office in the interstate commerce building, Washington.

* * *

Because of the numerous inquiries received by the department of agriculture regarding the licensing of retailers of farm implements, the department has issued a special statement which repeats parts of the President's proclamation, requiring licensing only retailers whose gross annual sales exceed $100,000. Dealers whose business is greater than this should apply for license to the department or to the license division of the food administration.

* * *

Four engineers have been named by the fuel administration to undertake savings in power plant fuel consumption. These are Thomas R. Brown, Pittsburgh, formerly special engineer with the Westinghouse Air Brake Co., for the western half of Pennsylvania; George R. Henderson, Philadelphia, formerly consulting engineer with the Baldwin Locomotive Works, for the eastern half of Pennsylvania; Edward N. Trump, New York, vice president of the Solvay Process Co., for New York state; and W. R. C. Carson, Hartford, a consulting engineer, for New England. The principal question under consideration is the waste of coal in the 250,000 industrial power plants of the country.

Wants Lorraine Ore

That Is Why Germany Started War, French Emissary Says

Possession of the iron ore and coal mines at Longwy and Briey, continues to be urged by the French as the German motive in starting the war. Some interesting data on the subject was presented by M. Marcel Knecht, a member of the French high commission in a recent address at the Pittsburgh chamber of commerce.

"One-half of Lorraine," he declared, "including the great industrial districts of Metz and Thionville was stolen by Germany in 1871. It contained an enormous richness in iron ore and was easily exploited and we French, in our sentimental desire to retain the city of Belfort, did not realize we were being deluded by Bismarck, who was so well aware of the value of the province. In taking these two districts Bismarck gave modern Germany the greatest weapon it has used to prepare war against France and the whole world.

"In German Lorraine greater reservoirs of ore were discovered than had been expected, furnaces were constructed, and great industrial interests, led by such capitalists as Thyssen, arose. We saw too late what we had lost. In the part of Lorraine which we kept we had some little iron but we never thought that there would be more iron ore and greater resources than in the annexed portion. Bismarck was told by his engineers that Longwy and Briey ore was valueless. When by a new process it was found to be so rich, suddenly Germany understood that she had been deceived and might have taken those districts also from her exhausted adversary in 1871.

"We transformed the little villages of Longwy and Briey into great cities, containing 30,000 and 40,000 miners, being obliged to bring Italians from southern France. We produced in 1914 about 18,000,000 tons in the districts of Longwy and Briey alone. In the German part of Lorraine there was produced 25,000,000 tons. The Germans saw this enormous development and also the discovery of huge deposits of coal in the Longwy region, and they realized we might become as strong as they in the future and independent of them for minerals.

"You can see how the Germans felt. They thought they had taken the only rich soil in Europe. Its value is shown when you understand that exclusive of German Lorraine only 6,000,000 tons of iron ore were produced in Germany. Now you realize why we were again attacked in 1914. The Germans wished to take from us the new mines of Longwy and Briey to control with Metz and Thionville the great mines of Europe. Conceive its importance. When your great Minnesota fields have not another ton of ore there still will be millions of tons in the Lorraine district. We have in Lorraine about 3,500,000,000 tons of iron ore."

Leaders of Industry Will Discuss War Problems

Industrial leaders of the country are being invited to attend an industrial conference to be held at Silver Bay on Lake George, N. Y., from Aug. 9 to 11. With the theme "Human Relations and Betterment in Industry and Transportation During the War" the meeting is being called to the end that industrial efficiency may be increased and industrial peace promoted. Under the auspices of the national war work council of the Young Men's Christian Association of the United States, a promotion committee has been formed of which H. H. Westinghouse of the Westinghouse Air Brake Co., Pittsburgh, is chairman. Committee members are located in each of the country's industrial centers.

Many prominent names appear in the list of speakers, including Ex-President William H. Taft, Prof. Irving Fisher of Yale University, Frederick H. Newell, former head of the United States reclamation service, and John J. Eagan. "Man Power" is the title of a paper to be presented by J. Parke Channing, vice president of the Miami Copper Co., New York City.

Obituaries

EDWARD HERMAN WACHS, president of the E. H. Wachs Co., Chicago, manufacturer of engines, lathes and other machinery, is dead at his home in Chicago, aged 76. He was born in 1842 in Germany and came to this country in early youth, making his home near Sandusky, O. He removed to Chicago in 1866 and became associated with the John Davis Co., with which he remained until 1876. That year he organized the Chicago Chain Works, which he sold in 1883 and started in business for himself, later incorporating as the E. H. Wachs Co., with his sons as partners five of whom survive him. For several years past he has not been actively connected with the business, but has retained the title of president.

John A. Murphy, an official of the Garvin Machine Co., New York, died July 12 in New York City, aged 62.

Oscar R. Graham, treasurer of the Singer Mfg. Co., died July 8 at his home in Elizabeth, N. J., age 73. He had been connected with the Singer Mfg. Co. for 45 years.

Lieut. J. G. Russell, formerly traveling inspector for the American Steel Foundries, Chicago, who enlisted in the Royal Flying Corps to serve on the Italian front, was killed in action June 15.

Clinton C. Murphy, widely known in railroad and iron and steel circles died July 14 at his home in Chicago. Mr. Murphy was president of the Union Metal Products Co., and vice president of the Standard Railway Equipment Co., and the C. H. Murphy Co. He was born June 5, 1875, in Cumberland, Md., and located in Chicago in 1898.

Charles Cassils, Montreal, wholesale iron and steel merchant, died July 2, aged 77, after a short illness. He was born in Scotland and came to Montreal in 1868. Since then, he has been actively identified with the commercial life of the city. He represented the iron and steel house of Bolckow, Vaughan & Co., Ltd., of Middlesbrough, Eng., and for many years acted as Canadian representative of the Carnegie Steel Co. He was connected with many important commercial and financial enterprises and was president of the St. Lawrence Bridge Co. and the Dominion Transport Co.

S. Jarvis Adams Sr., Pittsburgh, one of the city's pioneer foundrymen, died at his home near that city on Coraopolis Heights recently. He was born in Oak Hill, N. Y., in 1837, and at the age of 25 entered the employ of Adams, McKee & Co. That company operated one of the first iron foundries in the Pittsburgh district. It grew rapidly and later the firm's name was changed to the Jarvis & Adams Co. In 1880, Mr. Adams founded the business of S. Jarvis Adams Co., to operate a large foundry in Pittsburgh. About 15 years ago he retired from active business life. During his connection with foundries he was granted 99 patents on various inventions relating to the foundry industry.

Iron and Steel Financial News

Up-to-the-Minute Fact and Comment Collected and Sifted For Busy Readers

Steel Plants Seek Funds for Extensions

IN allowing $7,500,000 for federal war taxes and other imposts for the first half of the current year, the Lackawanna Steel Co. is laying aside about twice the amount that would be called for under the present tax law, it is calculated in financial circles. Allowances for profits taxes now are, of course, difficult to estimate, as congress is still debating as to the provisions of the new tax measure. In addition to increased levies on profits and incomes, it is proposed to levy a consumptive tax on luxuries, ranging as high as 50 per cent on jewelry. Consequently, the final action as to profits remains in doubt. However, the fact that $8,00,000,000 is to be raised in taxes this year is enough to warrant expectations of imposts just about as heavy as the traffic will bear.

Financing Syndicate Formed

Details of the new Bethlehem Steel Corp. financing announced early this week contain a number of interesting features. A banking syndicate has been organized to underwrite $50,000,000 notes of the corporation and of the Bethlehem Steel Co. At the request of the syndicate the War Finance Corp. has agreed to take $20,000,000 of the issue, but in the event the public absorbs the full $50,000,000 the full government credit will be refunded. The notes are to have different maturities ranging from one to five years and will bear interest of 7 per cent. The prices at which the various maturities will be offered will average about 7⅝ per cent. A consolidated mortgage is to be created which eventually will aggregate $500,000,000. The new notes will be secured by a pledge of $70,000,000 of the new consolidated mortgage bonds and they will have a convertible feature, being exchangeable for the new consolidated mortgage bonds on a 6½ per cent basis. The syndicate announced that $7,500,000 of the notes would mature each year for the first four years, while the remaining $20,000,000 will mature the fifth year. The Bethlehem Steel Corp. needs the money for additional facilities, that its output of steel and munitions may be increased. Several other steel companies are said to have sought varying amounts of funds, accompanying their requests with statements that the money is to be used for plant extensions. All such applications made to the War Finance Corp. are being referred to the war industries board, because the steel industry is within its province.

In some cases requests for funds are meeting with unfavorable response, for while the War Finance Corp. would advance the money, if sanctioned by the board, the war industries board, on the other hand, is discouraging construction of new steel plants because of the large amount of steel required which otherwise would be used in direct war preparations.

The provision in the new Bethlehem financing plan requires that net current assets must always equal notes outstanding under the mortgage if the common stock is to receive dividends.

Although the stock market for the last few weeks has been suffering from an attack of the July dumps due to various causes, many observers believe that higher values are in store.

The elements making for optimism in both as to the stock market and industrial earnings are predicated on the fact that the country is fast working up to a monthly expenditure of $2,000,000,000 by the government.

Lackawanna Earns Well Despite Increased Taxes

On net earnings of $14,182,884, for the first half of 1918, estimated taxes of $7,500,000 have been deducted by the Lackawanna Steel Co. While in previous reports, estimated taxes for the first half of 1917 were deducted the new report by way of comparison gives the actual amount paid as $4,845,194 on net earnings of $15,231,697 in that period. This report is the first to be issued covering the first half and second quarter. It indicates that despite estimates of greatly increased federal levies for 1918, an encouraging high rate of profits has been maintained so far. Profits for the first half of 1918 are $5,059,290 as against $8,502,073 in 1917. This is equivalent to 28.4 per cent per share on the company's $35,097,500 outstanding common stock this year, as compared with 45.89 per cent last year.

A significant feature of the report is the fact that although the total net earnings of $14,182,884 after providing for all expenses including ordinanry repairs and maintenance, were less by more than $1,000,000 than last year's total, the tax estimate is higher by $2,654,805. This shows that taxes increased more than 56 per cent, since the basis used for anticipating taxes is the highest that has been suggested at Washington, namely around 80 per cent. It possibly indicates to what extent the new tax law will affect profits.

The comparative income account for the first half of 1917 and 1918 is as follows:

	1918	1917
Total net earnings	$14,182,884.81	$15,231,697.98
Bonded interest & other obligations		
Lackawanna Steel	466,312.50	622,585.41
Subsidiaries	87,661.80	100,029.15
Rentals and royal.	.....	8,542.72
	553,974.30	731,157.28
Balance	13,628,910.51	14,500,540.70
Extinguishment of mines and min'g investments	189,289.85	207,387.99
Depreciation and accruing renewals.	880,329.67	945,884.62
	1,069,619.52	1,153,272.61
Profit before taxes and special contingency	12,559,290.99	13,347,268.09
Tax reserve	7,500,000.00	4,845,194.75
Profit first half....	5,059,290.99	8,502,073.34

Unfilled orders reported at the end of June were 556,207 tons, as against 913,196 tons one year before. Owing to the adjustment of taxes in the second quarter's report, the company says the relation of the figures of the second and first quarter are to a certain extent impaired. A healthy gain in earnings over the first quarter is shown, however.

In adjusting the matter of taxes first quarter profits were likewise ad-

justed. Second quarter profits are given as $3,312,543, while profits for the half year are $5,059,290. A subtraction gives $1,746,747 the actual profits for the first quarter, whereas in previous reports $2,996,747 was the figure given. This is explained by reason of the fact that in the first quarter reports, taxes were deducted on the 1917 basis, while in the second quarter, the 1918 tax basis applies and is used for the estimated tax deduction in the half year's report.

A comparative income account for the second quarter follows:

	1918	1917
Total net earnings	$7,922,897.50	$8,635,838.04
Deduct:		
Bonded interest & other obligations		
Lackawanna St'l	233,156.25	311,291.67
Subsid. Co.'s ...	43,400.00	45,945.82
	276,556.25	357,237.49
Balance	7,646,341.25	8,278,600.55
Exting. of mines & mining invest...	101,385.50	105,702.32
Depreciation and renewals	482,412.23	508,841.66
	583,797.73	614,543.98
Profit before taxes	7,062,543.52	7,664,056.57
Tax reserve and special contingency	3,750,000.00	2,422,597.37
Profit	3,312,543.52	5,241,459.20

Enemy-Owned Steel Stock Seized by Government

The United States Steel Corp.'s record of foreign ownership of its shares on June 30 last shows that in the second quarter of the year much stock was found to be owned in Germany and Austria whose ownership previously had been concealed from the corporation's management. Austria was credited with 1620 more shares of Steel preferred and 1305 more shares of common, than on March 31, while German holdings of preferred gained 2388 shares in three months. The knowledge acquired by the corporation was reported to the custodian of alien property and the stocks in question have been seized by the government. Much of the steel stock owned abroad is held in big blocks by banks in foreign countries or the United States, which look after the proper apportionment of dividends. The corporation, having only the record of the trustee, as owner, pays dividends to the trustee, with the direction that the recipient is responsible for the division of the proceeds among the various stock owners to the extent that the transmissions of funds must not be made to enemy aliens.

As the result of these measures, it was learned, the corporation has received back many dividends since the United States entered the war, with notification from the trustees as to the actual ownership of the stock entitled to these dividends. In this way the alien owners have been checked up and the alien property custodian supplied with valuable information.

Ownership of steel common by investors increased during the second quarter. On June 30 the number of shares held in the names of individuals was 2,858,076, or 56.22 per cent of the total outstanding issue, compared with 2,820,445 shares, or 55.49 per cent on March 31. On Dec. 31 53.47 per cent of the common stock was in the hands of investors, showing that the gain in the six months ended with June was more than 2 per cent. The investment holdings were differentiated on the corporation's books from stocks in brokers' names.

The latest figures show that the distribution of the common stock had reached a new high record near the end of May, the total of recorded holders being 63,507 when the books were closed for the dividend. Three months before stockholders numbered 61,044, in December they were 51,689, and a year ago 43,342. The number of holders of preferred stock has changed comparatively little in the last eight months, being 80,142 when the books were last closed, compared with 79,521 last November.

Financial Crop Ends

At the recent annual meeting of the Brier Hill Coke Co., subsidiary of the Brier Hill Steel Co., at Brier Hill, Pa., the following officers were elected: President, Thomas McCaffrey; vice president, W. H. Warren; secretary, W. P. Phelan, and treasurer, N. B. Folsom.

* * *

The Detroit Iron & Steel Co. has elected the following officers: President, Howard M. Hanna Jr.; vice president, Frank Richards; secretary, R. S. Grant, Cleveland; assistant secretary and treasurer, W. S. Whitcomb.

* * *

Since July 1, the business of the Manown Mfg. Co., Pittsburgh, brick and fire clay, has been conducted by the Pittsburgh Coal Co., which has taken it over. Operations will be conducted as the Manown Mfg. Co. department of the Pittsburgh Coal Co. J. W. Barber, formerly vice president has been made manager of the new department.

* * *

The Bethlehem Steel Co. has filed suit in the New Jersey supreme court to recover damages amounting to $2,920,213.43 from the Lehigh Valley Railroad Co., as a result of the Black Tom powder explosion, Jersey City, in 1916, at the dock of the railroad company. The steel company lost 17 carloads of munitions and two carloads of combination fuses in the explosion, which, it is claimed, was due to the negligence of the railroad company in not having careful handlers of ammunition at the docks and in not providing adequate fire protection there.

Large Orders

Placed for Benzol Strengthens Market—Xylol Bids Taken

New York, July 13.—Large orders for benzol have been placed by the ordnance department during the past week and bids have gone in on additional quantities. Commercial consumers also have been buying actively, so that the tone of the market has changed and is strong from the statistical standpoint. On the business with the government, producers patriotically have quoted much lower than market prices. Pure benzol for commercial consumption is quoted at 25 to 30 cents per gallon. On large contract business, this level has been materially shaded.

Bids were opened yesterday by the navy department on large quantities of xylol. Xylol is made from the same fraction from which solvent naphtha is derived. Inasmuch as the navy wants all of the xylol obtainable, a marked scarcity of solvent naphtha is promised. In anticipation of this government business, numerous commercial consumers are closing for their requirements.

The war industries board has rejected many applications for July toluol from commercial users. Where releases were made they are smaller than wanted. Indications are that releases for August will be further curtailed. Much phenol is wanted for export particularly for Japan. Export licenses, however, are obtainable with difficulty. This situation has resulted in softening the market.

Coke Oven By-Products

Spot

Per Gallon at Producers Plant	
Pure benzol	$0.25 to .30
Toluol (on sales sanctioned by government) (tank cars)	1.50
Toluol (on sales sanctioned by government) drums	1.55
Toluol (for government)	1.50
Solvent naphtha	.20 to .25
Per Pound at Producers Plant	
Phenol	$0.45 to .48
Naphthalin (nominal)	.10 to .12
Per 100 Pounds at Seaboard	
Sulphate of ammonia (nom.)	$5.65 to 5.75

Contract

Pure benzol	nominal
Toluol	no market
Solvent naphtha	$0.18 to .22
Per Pound at Producers Plant	
Phenol	.45 to .48
Per 100 Pounds at Seaboard	
Sulphate of ammonia (for commercial use)	no market
Sulphate of ammonia (for government)	$4.50

Activity Varied in Machine Market

Washington Meeting May Result in Issuance of Huge Crane Lists—Many Machine Tool Orders Placed and Pending—Some Prices Advance—Railroad Business Apportioned—Used Machinery Active

INTEREST in the machinery market in the east chiefly is centered in the meeting of crane builders scheduled to be held in Washington this week. It is expected that an announcement will follow shortly as to the war department's crane requirements for the next 12 months, for use both here and abroad. Railroad and ordnance plant requirements will likewise receive attention. Some extension of government supervision of the electric crane industry is anticipated in several directions. Because of the large business in prospect builders are not worried about the present apparent lull. Purchases of cranes by the Bethlehem Shipbuilding Corp., and the New York Shipbuilding Co., however, have reduced their respective lists. Prices have advanced in the east on all machine tools except boring mills and shapers. The same tendency is noted elsewhere. The Air Nitrates Corp. is likely to enter the market soon. It will build a $20,000,000 plant at Toledo, O. Many other building projects presage an increased demand for machines. These include a $2,000,000 Fordson tractor plant at Hamilton, O., two tractor plants for the Chandler Motor Car Co. at Cleveland, and a new plant in Ohio, the location or character of which is not announced. For this latter project, Ford, Baker & Davis, New York City, industrial engineers, have issued a large list covering entire equipment. The New York Central railroad has apportioned orders for practically all equipment desired for its central western shops. Other railroads are buying spasmodically. Several have buildings in contemplation which give promise of additional crane and machine tool business. The Miehle Printing Press & Mfg. Co., Chicago, has issued a small list. For used machinery a splendid demand is maintained. That market has aroused from the lethargic state so marked earlier in the month. Among those desiring used equipment is Bertsch & Co., Cambridge City, Ind.; Ohmer Fare Register Co., Dayton, O.; and the Eclipse Stove Co., Mansfield, O., the first named having issued a fair-sized list. A definite list of tools for Neville island is awaited with keen interest.

Will Government Supervise Electric Crane Output?

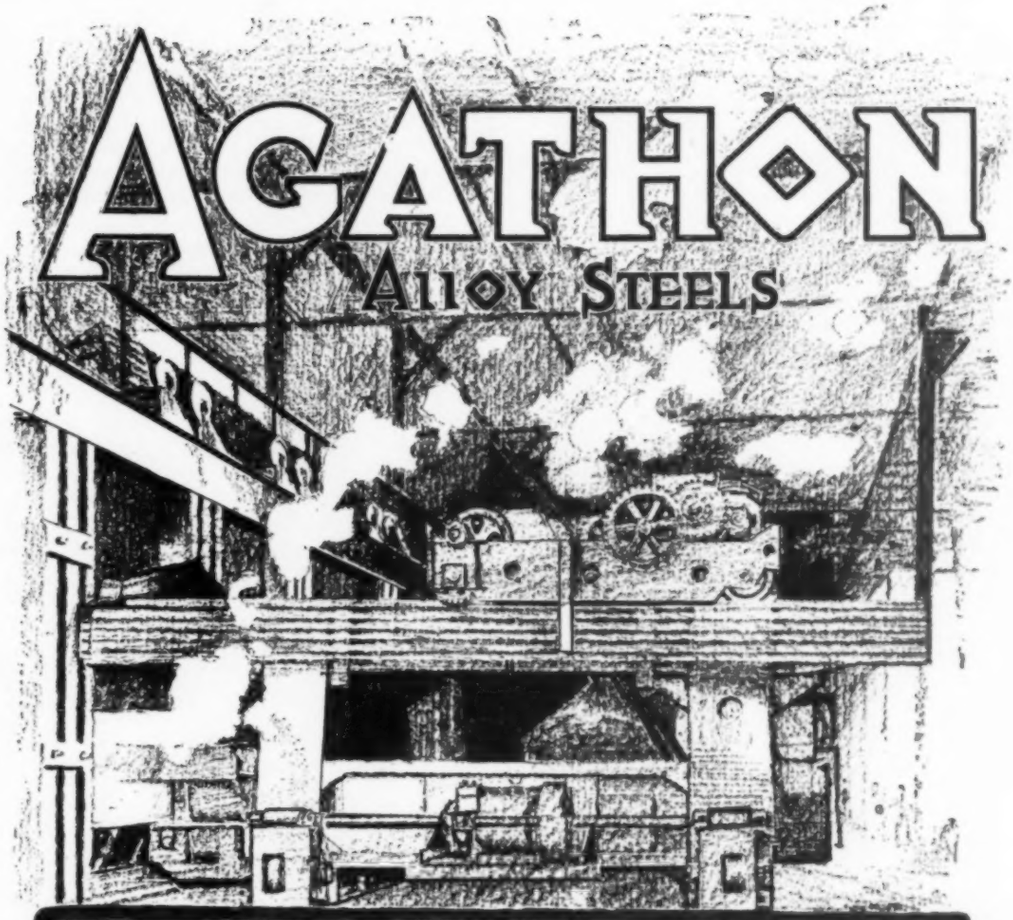
MUCH speculation prevails in the eastern crane market as to developments likely to arise at a meeting of crane builders and government officials in Washington this week. In some quarters it is believed that announcement of crane requirements of the war department over the next 12 months will be made, thus following the precedent, established by the navy department and, at the same time, throwing considerable light on reports of huge government requirements, which have been current during the past two weeks. Two hundred and ten overhead cranes, of 5 and 10 tons capacity, for shipment to France, and also 40 locomotive cranes, are said to be included in these requirements. It is also thought likely that the needs of the railroads will be given special consideration at that time, and, what is regarded as being still more pertinent, the list of the United States Steel Corp. for Neville island. Whether or not the meeting will result in the electric crane industry being placed under some stricter form of government supervision, such perhaps as is now in effect with locomotive crane builders, is not known, although such action is regarded as likely.

In view of the huge volume of new business which may develop in the near future and with the large requirements of the Neville island ordnance plant and other sizable lists active, eastern crane interests are showing little concern over the falling off in miscellaneous demand during the past couple of weeks; in fact, this development is viewed with considerable relief by some, whose plants are well booked over the next several months.

With the award of 34 tower cranes to Terry & Tench, New York City, 30 for the Alameda plant and four for the Sparrows Point, Md., plant, the Bethlehem Shipbuilding Corp. has reduced its list to four hammerhead cranes, on which action is expected almost daily. Another shipbuilder to reduce its list is the New York Shipbuilding Co., this interest having recently placed a number of 15-ton traveling cranes with the Pawling & Harnischfeger Co., Milwaukee, and two 5-ton travelers with the Bedford Foundry & Machine Co., Bedford, Ind. The Air Nitrates Co., New York City, is understood to have closed with the Brown Hoisting Machinery Co., Cleveland, for eight 15-ton locomotive cranes for the new government nitrates plant near Toledo, O. The Tacony Steel Co., Philadelphia, has bought a 5-ton overhead crane from the Chesapeake Iron Works, Baltimore. The government has purchased for the Brooklyn aircraft stores seven electric cranes, three of these going to the Cleveland Crane & Engineering Co., Cleveland.

Included in new inquiries are two overhead cranes, of 5 and 10 tons capacity, to be bought by Lockwood, Greene & Co., New York, contractors, for the Driver-Harris Co., Harrison, N. J. The Barbara Asphalt Co., Buffalo, is asking bids on a number of electric cranes for the proposed addition to its boiler shop. A list of other equipment needed for this extension is expected to come out shortly. Anderson-Meyer & Co., 80 Wall street, New York, are in the market for two 10-ton overhead cranes for shipment to China. The Schoffield Engineering Co., Philadelphia, is reported to be inquiring for 10 locomotive cranes, of various capacities, for a con-

AGATHON
ALLOY STEELS



IN less than four years the demand for Agathon Alloys has increased to such an extent until now, despite extensive plant additions, we find the greatest difficulty in keeping abreast of the incoming orders.

The reason for Agathon popularity may be summed up in one well-known sentence:

They *always* serve your purpose best.

The CENTRAL STEEL *Co.*
MASSILLON, OHIO—*Agathon City*

Sales Offices

Detroit, F. Walter Guibert, District Representative. 326 Ford Bldg. **Cleveland,** Hamill-Hickox Co., District Representative, Hickox Bldg. **Chicago,** C. H. Beach, District Sales Mgr., 1370 Peoples Gas Bldg. **Philadelphia,** Frank Wallace, District Sales Mgr., 603 Widener Bldg. **Syracuse, N. Y.,** T. B. Davies, District Sales Mgr., 621 University Block **General Export Agent,** J. E. Dockendorff & Co., 20 Broad St., New York, N. Y.

AGATHON STEELS

crete ship yard on the Pacific coast. The Spicer Mfg. Co., Plainfield, N. J., has changed its inquiry from a 10 to a 5-ton electric crane.

An outstanding development in the machine tool market during the past week has been a general advance of 10 to 15 per cent in prices. Boring mills and shapers were among the few types not affected. Deliveries on machine tools at this time appear to be about holding their own. Upright drill presses can be had in from 30 to 90 days. Cone drive milling machines can be obtained within 60 days, although there are some companies sold ahead for three to four months. Radial drills and boring mills can be delivered by September or October. While plain grinders are being quoted for almost immediate shipment, universal grinders are from two to three months off and cylindrical grinders from two to four months. New inquiry for machine tools in the east continues relatively light. The stove works of the Isaac A. Sheppard Co., Philadelphia, is reported to have been bought by the Savage Arms Co., Utica, N. Y., which will use the plant for the manufacture of Lewis machine guns. It is expected that new equipment will be purchased.

Quotations on two motor-driven lathes, 65 inches x 35 feet, have been asked by one of their European clients of C. W. Leavitt & Co., 30 Church street, New York. Second-hand equipment may be purchased if new machinery cannot be readily located.

Varied Sales of Small Tools in Cleveland

PRACTICALLY every industry is represented in the orders placed with Cleveland machine tool dealers the past week. This means every industry having to do with war work, since priority numbers are the prerequisite in obtaining deliveries. Some dealers report extremely satisfactory sales sheets. Orders for the most part are for small machines. At regular intervals, those plants needing tools to piece out their equipment to enable them to complete government contracts, come into the market and these are able to get the machines. They have to have them and they have priority order numbers. It is practically impossible to buy machines for stock.

While actual placing of orders has been more or less spasmodic with the New York Central railroad, it is understood that orders have been apportioned on its big list which has been out a few weeks. Wherever the desired machines have been located verbal requisitions have been made and the confirming orders are expected almost daily. The American Shipbuilding Co. is understood to have bought sufficient punching, shearing and other equipment to supply its present need, although small orders continue to be sent out now and then. The American Steel & Machinery Co., Massillon, O., is desirous of securing machinery with which it will make smaller tools, such as gages, boring bars, cutting tools, etc. This company's lathes are built by the parent concern at Bucyrus, O., the American Clay Machinery Co., which has several shell contracts. The Ohio Blower Co., Cleveland, is understood to have purchased all its equipment for manufacturing ventilators for the Emergency Fleet corporation. The Grant Motor Car Corp. made inquiry recently for a number of blacksmith's forges and other equipment. The Miehle Printing Press & Mfg. Co., Chicago, has entered the Cleveland market with an inquiry for two 6-foot or larger vertical boring mills with not less than 56 inches between the rail and table, or which can be raised to clear 56 inches; one large horizontal boring mill with 4 or 5-inch bar; one Pratt & Whitney double spindle splining machine modern; one slotter with 18-inch stroke. The Machine Products Mfg. Co., East 152nd street, Cleveland, is in the market for a shaper; the Ohmer Fare Register Co., Dayton, O., continues to request quotations on foundry and machine tools. The Pensacola Shipbuilding Co., Pensacola, Fla., recently desired a 16-inch shaper and is understood to have placed its order.

It is expected that the Air Nitrates Corp., New York, which has awarded the contract for a $20,000,000 nitrate plant to be built near Toledo, and which has a crane inquiry out, will issue a tool list shortly. A 500-acre tract on the Maumee river, owned by the Cleveland-Cliffs Iron Co., has been acquired and the plant will be completed in about eight months. The Shuler Axle Mfg. Co., Detroit, is moving to Louisville, Ky., and will build a small drop forge shop and a complete machine shop, for which equipment will be desired. The Timken-Detroit Axle Co. is building another three-story machine shop at Detroit. After a wide search in this locality for capacity to produce tractor wheels and axle housings, Henry Ford and son will build a $2,000,000 tractor plant at Hamilton, O. The Atlas Steel Castings Co., Buffalo, will likely be in the market for machinery for its new building, 60 x 200 feet, which is being built by the Austin Co., Cleveland. Additional tool requirements on the part of the Chandler Motor Car Co., Cleveland, are daily anticipated, since it intends to rush work on two additional tractor plants, near the one recently completed. This company now is in the market for a Duplex milling machine. Ford, Baker & Davis, New York, industrial engineers, have sent out a blanket inquiry for a large number of machine tools, including planers, shapers, drills, lathes, precision lathes, milling and boring machines, etc., to equip a plant somewhere in Ohio. It is not known in this locality what sort of a plant is in contemplation. The Strong, Carlisle & Hammond Co., Cleveland, has received an order to export two special lathes to London, Eng.

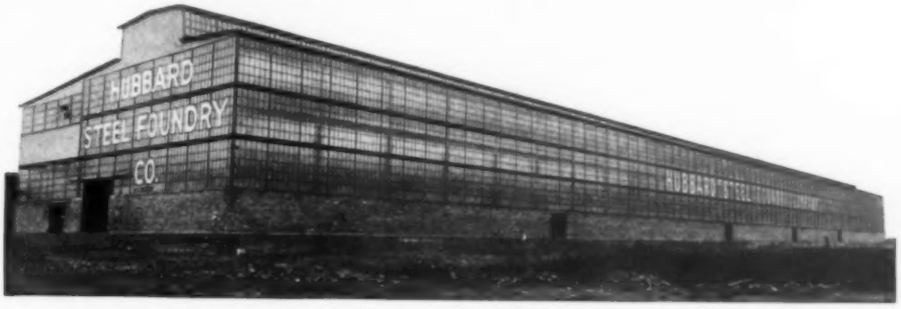
Used Machinery Demand Good

Inquiries for used machinery continue to come out in fairly good volume. Bertsch & Co., Cambridge City, Ind., has issued a list as follows: One No. 0 Detrick & Harvey floor type boring machine; one 5-foot universal Niles-Bement-Pond radial drill; one 6-foot Baush plain radial drill; one 28-inch x 14-foot Fay & Scott engine lathe; one 38-inch x 27-foot Putnam heavy duty engine lathe; one 84-inch x 56-inch x 16-foot Gray planer; one 24-inch x 24-inch x 6-foot Gray planer; one 72-inch x 72-inch x 16-foot Pond planer and one 84-inch x 56-inch x 16-foot Gray planer. The Eclipse Stove Co., Mansfield, O., is in the market for a No. 93½ Toledo brass banding machine. The Central Power Co., Canton, O., desires to secure a No. 2 universal milling machine. The W. M. Pattison Supply Co., Cleveland, is offering a large line of machine tools purchased by it from the Pull More Motor Truck Co., New Castle, Pa.

Await Definite Neville Island List

WITH keen interest the Pittsburgh market awaits the actual issuance of a tool list, which has been estimated to cover 400 machine tools for the Neville island ordnance plant of the United States Steel Corp. A contract for four 6500-ton forging presses for it has been awarded the United Engineering & Foundry Co., Youngstown, O. Some cranes have likewise been purchased. The Republic Iron & Steel Co., Youngstown, has been in the market for equipment for a machine shop at its open-hearth plant and is understood to have placed several orders with the Motch & Merryweather Machinery Co., Cleveland. The Youngstown Foundry & Machine Co., Youngstown, O., has purchased a 10-acre tract in Girard, O., and will erect a modern foundry and machine shop, for which it will desire equipment.

SPEEDING with ROLLING MILL JIM



Say Fellows! you remember the first of March I told you the "Hubbard" broke ground for a new foundry? Well here's a picture of her, she started with a BANG, June 3rd. Just 93 days! She has ***some*** up-to-date equipment in her, installed by ***some speed artists,*** I'll say: electric furnace, open hearth furnace and all that swell stuff. Pike her off for yourself!

So long,

Rolling Mill Jim.

Hubbard Steel Foundry Co.

EAST CHICAGO, IND.

All Kinds of Iron and Steel Rolls and Steel Castings.

New Construction and Equipment

Concise and Timely Business Building Opportunities from the Field of Industry

Along the Middle Atlantic Seaboard

BROOKLYN, N. Y.—A $30,000 machine shop will be erected by E. Behringer. The proposed building will be one and two stories, 148 x 250 feet.

BROOKLYN, N. Y.—Anthony O. Boyle has purchased property at Greenpoint, L. I., for use as a shipyard site. The property has a water frontage of 610 feet.

BROOKLYN, N. Y.—The Multiplex Tool Co. recentiy was incorporated to manufacture machinery and tools with $100,000 capital by E. Anderson, O. Nygren and G. Sjoberg, of New York.

BUFFALO.—The General Drop Forge Co. is receiving bids on alterations to its plant.

BUFFALO. — The Howard Iron Works plans the erection of a $5000 machine shop addition.

BUFFALO.—Bids are being asked for a foundry, 1-story, 50 x 300 feet, by the Strong Steel Foundry Co.

BUFFALO.—Plans have been completed for an office building, 2-stories, 23 x 87 feet, to cost $8500 for the Buffalo Drydock Co.

BUFFALO.—Plans are being drawn at Albany, N. Y., for a canal warehouse to be constructed of brick and steel.

BUFFALO.—Plans are being completed for a $50,000 storage building for the Automatic Transportation Co. It will be 3-stories, 60 x 70 feet.

BUFFALO.—The Delaware, Lackawanna & Western railroad contemplates the erection of a 1-story, 103 x 660-foot power shed. Architect F. N. Nies, Hoboken, is drawing preliminary plans.

ELMIRA, N. Y.—The Kennedy Valve Co. is said to be contemplating the erection of a factory here.

HIGH FALLS, N. Y.—Bids will be received shortly on the construction of a 1-story, 60 x 260-foot paper mill for the High Falls Pulp & Paper Co.

MOHAWK, N. Y.—The Elastic Spring Knit Corp. is planning to double its capacity by the erection of a 50 x 124-foot mill.

NEW YORK. — The Standard Concrete Steel Co. plans to erect a machine shop addition. Albert B. Strator, architect, is drawing plans for a building two stories 21 x 92 feet.

NEW YORK.—The Derf Mfg. Co. has been incorporated with $100,000 capital by W. B. Noble, F. L. Hart and W. F. Wilson, of New York. The company will manufacture spark plugs, etc.

SIDNEY, N. Y. — The Sydney Novelty Works will build two factory buildings, each one story, 75 x 275 feet.

SYRACUSE, N. Y.—A $25,000 addition will be erected by the Brown, Lyon, Chapin Co. to its storage and assembly building. Architects Taylor & Bonta will receive bids shortly.

ALLENTOWN, PA.—The Bethlehem Motors Corp. has let the contract to George Hardner for a $30,000 warehouse.

FORT CITY, PA.—J. W. Cruikshank has prepared plans for a machine shop, 76 x 100 and 100 x 150 feet, for the Fawcus Machine Company.

FORT WASHINGTON, PA.—The Columbia Chemical Co. has had plans prepared for an addition to its plant here.

HYDE CITY, PA.—The Nickel-Alloys Co. has let a contract for a tube mill, 140 x 250 feet, and machine shop, 40 x 80 feet.

LANCASTER, PA.—Architect M. R. Evans, this city, is preparing plans for a $10,000 addition to the plant of the Bottonfield Tire Co.

LANSDALE, PA. — The Central Radiator Co. will build a $5000 addition to its core room.

MANHEIM, PA.—The Bond Foundry & Machine Co. has let a contract to N. W. Gingrich, this place, for a $10,000 pattern shop.

NEW CASTLE, PA. — The Pennsylvania Engineering Works proposes to build an addition to its plant here.

PHILADELPHIA. — The Specialty Engineering Co. will build a 2-story plant addition, 46 x 68 feet.

PHILADELPHIA. — Thomas Reilly has been awarded the contract for an extension to the government aircraft plant at League Island.

PITTSBURGH.—The Union Steel Castings Co. has bought a tract, 177 x 100 feet, which will be used for storage purposes.

PITTSBURGH.—Turon & Schwartz, this city, has let the contract for a planing mill, to cost $5000.

BELLEVILLE, N. J.—Wilbur B. Driver Co. has been incorporated with $500,000 capital to manufacture wire rope, cables, etc. The incorporators are Irving Eisenberg, Evelyn T. Adam, Arthur T. Vanderbilt, Newark.

CAMDEN, N. J.—Camden Gas Works will erect purifier and generator houses. The buildings will be one story of brick and steel.

CAMDEN, N. J.—The city council will issue $650,000 in bonds for improvements at Yorkship, new shipyard center as follows: New schools, $300,000; water, $120,000; paving and sewage plant, $129,300; fire house, $27,000.

HARRISON, N. J.—The contract for constructing a $500,000 rolling mill for the Crucible Steel Co. has been awarded to W. H. & F. W. Cane, Woolworth building, New York City. Plans call for a structure one story, 200 x 400 feet.

HAWTHORNE, N. J.—The plant of the Schaefer Ball Bearings Co. will be sold at receiver's sale for the benefit of the creditors. The principal plant is 80 x 240 feet and contains high grade machinery.

JERSEY CITY, N. J.—The Hudson Shipbuilding & Repair Co. has been incorporated with $100,000 capital to manufacture metals and build boats. The incorporators are W. W. Gearhart, of New York; A. G. Stewart, of Arlington, and Neta Murphy, of Ridgewood.

KERNEY, N. J.—Work on the construction of the second unit of the proposed $2,000,000 submarine chaser plant to be erected here by Henry Ford will begin at once. The proposed structure will be 400 x 1400 feet.

NEWARK, N. J.—The Simmons Co., Kenosha, Wis., has purchased 15 acres near here for the erection of a new plant.

NEWARK, N. J.—United Advertising Corp. will build a brick factory, one story, 90 x 103 feet, to cost $30,000.

NEWARK, N. J. — Butterworth-Judson Corp. will erect a 1-story frame factory, 40 x 60 feet, to cost $8000.

NEWARK, N. J.—Copely Mfg. Co. will erect a one-story brick workshop, 21 x 125 feet, to cost $8000.

NEWARK, N. J. — Essen Foundry Co., Avenue D and Murray street, will erect a one-story brick and steel factory, 75 x 180 feet, to cost $25,000.

NEWARK, N. J.—Louis Sacks, Inc., has been incorporated with $500,000 capital to manufacture steel, etc. The incorporators are Louis Sacks, Kate M. Sacks and David L. Sacks, all of Newark.

NEWARK, N. J.—The Hermann Motor Truck Co. has been incorporated with $25,000 capital to manufacture engines, etc. M. E. Gassett, Abraham Beck and Cecil Rosing, all of Newark, are the incorporators.

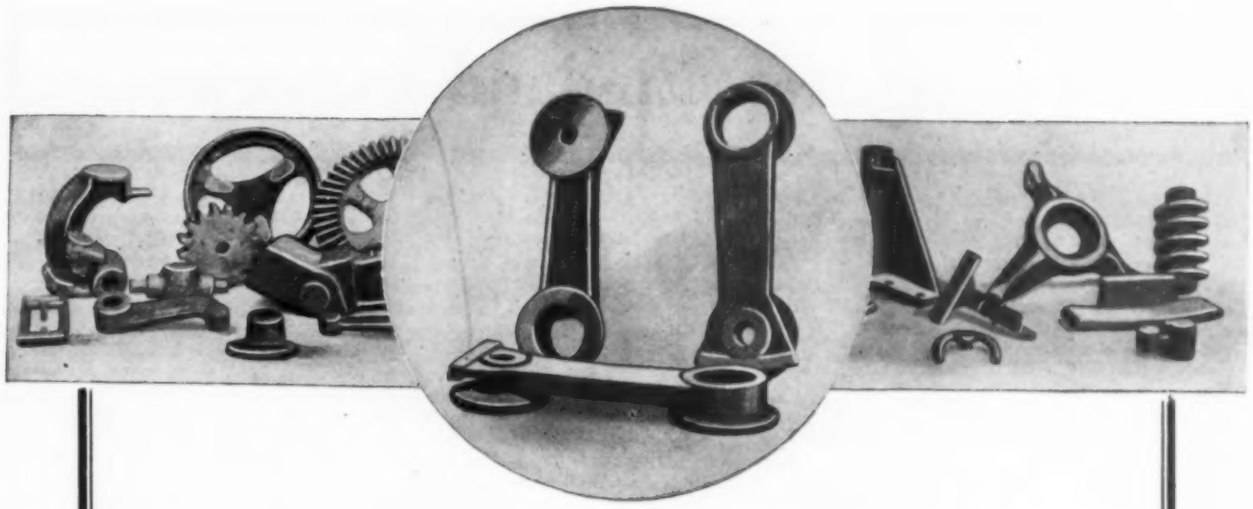
NEWARK, N. J.—Eureka Tool & Machine Co. has been incorporated with $25,000 capital to manufacture tools. The incorporators are August Weinert Jr., Newark; Joseph Boresjak, Curill D. Buvka, Elizabeth, N. J.

GLOUCESTER, N. J.—Bissell & Sinkler, Bailey building, Philadelphia, have had plans drawn for 400 2-story, brick dwelling houses for the Pennsylvania & New Jersey Shipbuilding Co.

PATERSON, N. J.—The American Steel Co. will build a 1½-story, 80 x 260-foot plant addition. M. McGinney is in charge.

TRENTON, N. J.—William R. Thropp & Sons Co., East State street, will erect a 1-story steel addition to its plant.

TRENTON, N. J.—The Dual Welding Apparatus Co. recently was incorporated by Frederick Demese, Marcel Lucas and others, with $50,000 capital.



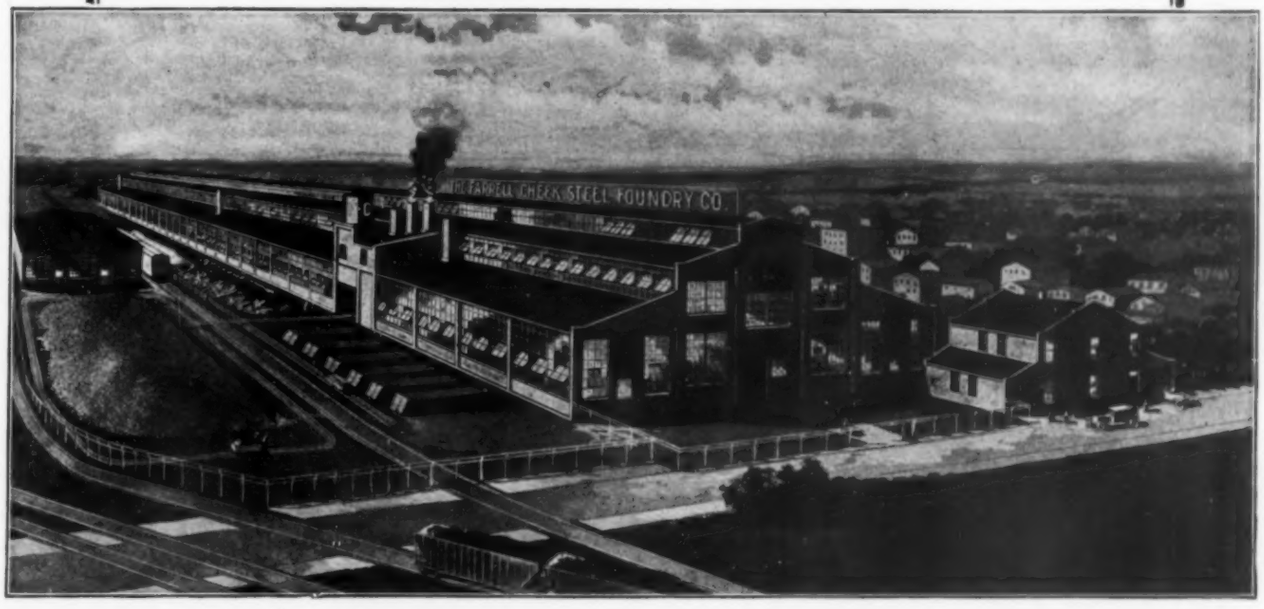
DEPENDABILITY

It makes but very little difference how small a casting is, or how intricate it may be. If it's a *Farrell-Cheek Casting* you can absolutely depend upon it to give excellent and lasting service.

Our plant is well equipped and can turn out quality castings in quantity—and do it in record time. Manufacturers of tractors; tool machines; motor trucks; gears; carbonizing and case hardening boxes will find *"Farrell-Cheek" Service* of great value. Let us quote you giving delivery dates.

Farrell-Cheek Steel Foundry Co.

SANDUSKY, OHIO



Say you saw it in THE IRON TRADE REVIEW

Among New England Factories

GARDINER, ME.—The United States Turbine Development Co. has been incorporated with $200,000 capital by Fred M. Cole, M. B. Cole and Henry A. Hood, Quincy, Mass.

KITTERY, ME. — The Telegraphone Mfg. Co. has been incorporated to make mechanical and electric devices with $500,000 capital by Charles S. Ballard, Springfield, Mass., Aaron B. Cole, L. B. Cole, Ralph E. Clark and M. E. Anderson.

MACHIAS, ME.—The Machias Ship Construction Co. has been incorporated with $100,000 capital by Howard A. Flynn, William C. Dinsmore, Charles N. Taylor, Wellesley, Mass., and William H. Morrison, Stockton Springs, Me.

WISCASSET, ME.—The Standard Shipyard Co. has been incorporated to do general shipbuilding with $100,000 capital by Andrew F. Lane, Boston, F. F. Pendleton, A. H. Lennox and Leon A. Gray.

BOSTON.—Bids close July 22 for a brick, fireproof, 2-story and basement, 27 x 225-foot infirmary building to cost $385,000, at the Mattapan insane hospital.

BOSTON.—The Boston & Penobscot Shipbuilding Co .has been incorporated with $75,000 capital by G. H. Lucey, Swampscott, Mass., E. M. McKay, Boston and W. L. Burhoe, Reading, Mass.

CHELSEA, MASS.—The Chelsea Foundry Co. is having plans drawn for a 1-story, foundry addition, 60 x 100 x 25 feet.

CHELSEA, MASS.—The Revere Rubber Co. will start work at once on the construction of a $10,000 warehouse. The proposed structure will be one story, 36 x 160 x 25 feet.

CHICOPEE, MASS.—The Torrington Co. will build a 2-story, 33 x 45-foot and a 4-story, 50 x 50-foot addition to its plant.

FALL RIVER, MASS.—The Westport Mfg. Co. will build a 2-story and basement storage warehouse to cost $50,000.

FALL RIVER, MASS.—The William C. Atwater & Co., Inc., will erect an 80-foot, 28 x 30-foot cantilever tower, to cost $30,000.

FALL RIVER, MASS. — The Shawmut Mills will build a brick, 1-story, 24 x 30-foot switchhouse.

HINGHAM, MASS.—The Kennedy & Peterson Construction Co., Boston, has the contract for 10 storage and five magazine buildings by the government at the naval magazine.

MALDEN, MASS.—Fitz Dana & Co., Boston, iron and steel, will build a brick, 105 x 228-foot warehouse and office at Medford and Commercial streets.

SPRINGFIELD, MASS.—The United Mfg. Co. has temporarily postponed its plans for the erection of a 2-story plant addition, 100 x 160 feet.

SPRINGFIELD, MASS.—The H. J. Hyland Mfg. Co. contemplates the erection of a plant addition, two stories, 40 x 80 feet. Preliminary plans are being drawn by H. L. Sprague.

WORCESTER, MASS. — The Worcester Stamped Metal Co. has let the contract for a brick, 1-story and basement, 96 x 108-foot addition to cost $20,000.

CENTRAL FALLS, R. I.—The Blackstone Stocking Co. has let the contract for a brick, 1-story, 24 x 40-foot addition.

NEWPORT, R. I.—The Vilter Mfg. Co., Milwaukee, has the contract for an ice-making and refrigerating plant for the government.

PROVIDENCE, R. I.—The Crown Worsted Mills will build a brick, 2-story, 33 x 38-foot addition.

PROVIDENCE, R. I. — The American Bridge Co., New York, has the contract for steel, 40 x 750-foot and 54 x 650-foot viaducts for the New York, New Haven & Hartford railroad.

HARTFORD, CONN.—The Spencer Turbine Cleaner Co. and the Organ Power Co. have been consolidated as the Spencer Turbine Co., with $300,000 capital by Ira H. Spencer, president, S. E. Phillips, secretary and H. H. Richardson, treasurer. Plans are being figured for a 1-story, 77 x 300-foot, and a 2-story, 40 x 77-foot factory.

NEW HAVEN, CONN.—The Mac-Rim Co. has been incorporated to make surgical instruments with $25,000 capital by A. J. McCormack, M. E. McCormack and A. E. Barclay.

STAMFORD, CONN. — The Mianus Mfg. Co. will receive bids shortly on the construction of a $40,000 dye house. The proposed building will be four stories, 40 x 150 feet.

WATERBURY, CONN.—The Standard Engineering Co. has changed its name to the Whital Engineering Co. and increased its capital from $20,000 to $50,000.

WATERBURY, CONN. — The Lynch Construction Co. has been incorporated with $100,000 capital by W. G. Lynch, William Lucas and K. G. Shaw.

WESTPORT, CONN.—The Volk Mfg. Co. has been incorporated with $10,000 capital by Charles M. Kemper, Leonard C. Mackenzie and W. Sterling Atwater.

Activities in the Central States

ATHENS, WIS.—Architects Swarthout & Speer, Wausau, Wis., are completing plans for a 1-story brick garage and repair shop, 45 x 120 feet, for A. Kreutzer & Esselman, to cost $12,000.

BELOIT, WIS.—The Beloit City Garage, owned and conducted by DeGroff & Hatch, is being enlarged to an area of 130 x 152 feet. The machine shop is being doubled.

GREEN BAY, WIS.—A sawmill and steam generating plant is to be erected by the Northland Lumber Co., which lost the greater part of its plant by fire, June 28.

JANESVILLE, WIS.—The Zuehlke Heating Co., Milwaukee, has the contract for installing a new steam heating system in the courthouse.

JUNEAU, WIS.—The Dodge county highway commissioner has accepted the bid of the Worden-Allen Co., Milwaukee, for erecting a steel bridge in Theresa, for $10,598.

KENOSHA, WIS.—A garage and machine shop, 100 x 147 feet, 1-story, will be erected for Leo Klobucnik.

KEWANEE, WIS.—A factory addition and warehouse, 60 x 75 feet, will be erected by the Frank Hamacheck Co.

MARINETTE, WIS.—The Aerial Cutlery Co. is taking bids for the erection of a 2-story brick and steel factory addition, 35 x 120 feet, to cost $15,000.

MARSHFIELD, WIS.—A bond issue of $60,000 for the construction and equipment of a vocational training institute and junior high school has been adopted by the school board.

MILWAUKEE. — Joseph Benesch & Co., Inc., will erect an addition.

MILWAUKEE.—A one-story factory addition, 30 x 85 feet, will be erected by the Durant Mfg. Co.

MILWAUKEE.—A pickling building, 40 x 45 feet, will be erected by the Geuder, Paeschke & Frey Co.

MILWAUKEE.—The Federal Pressed Steel Co. has broken ground for a shop addition, 100 x 255 feet, to cost $42,000.

MILWAUKEE.—The malleable iron foundry of the Chain Belt Co. will be enlarged by the erection of a shop addition, 30 x 90 feet, and a new sand bin house, 40 x 60 feet.

MILWAUKEE. — Articles of incorporation have been filed by the North American Chemical Co. The capital stock is $85,000. Richard Schneider is president.

MILWAUKEE.—The Globe Seamless Steel Tubes Co. is erecting large extensions to its plant, but at present is in the market for only a locomotive crane.

MILWAUKEE.—After several months delay the Standard Steel Corp. has been able to proceed with the erection of its plant. Architect F. D. Chase has completed plans. The buildings will consist of a brick and steel foundry, 40 x 140 feet, and a machine shop, 60 x 200 feet, two stories high, of brick, steel and reinforced concrete.

OSHKOSH, WIS.—The bid of the Manistee Iron Works, Manistee, Mich., for furnishing a new centrifugal pumping unit for the city water works station at $1518 has been accepted.

SAUK CITY, WIS.—Fred Powers is completing a public garage and machine shop at a cost of $12,000, including machinery and equipment.

WSM

STEEL PLANT EQUIPMENT
COKE OVEN MACHINERY
GAS PRODUCERS
ORE AND COAL HANDLING MACHINERY
SPECIAL CRANES
MINING MACHINERY
HYDRAULIC TURBINES

The Hughes Mechanical Gas Producer

REPEAT ORDERS
Indicate Satisfaction

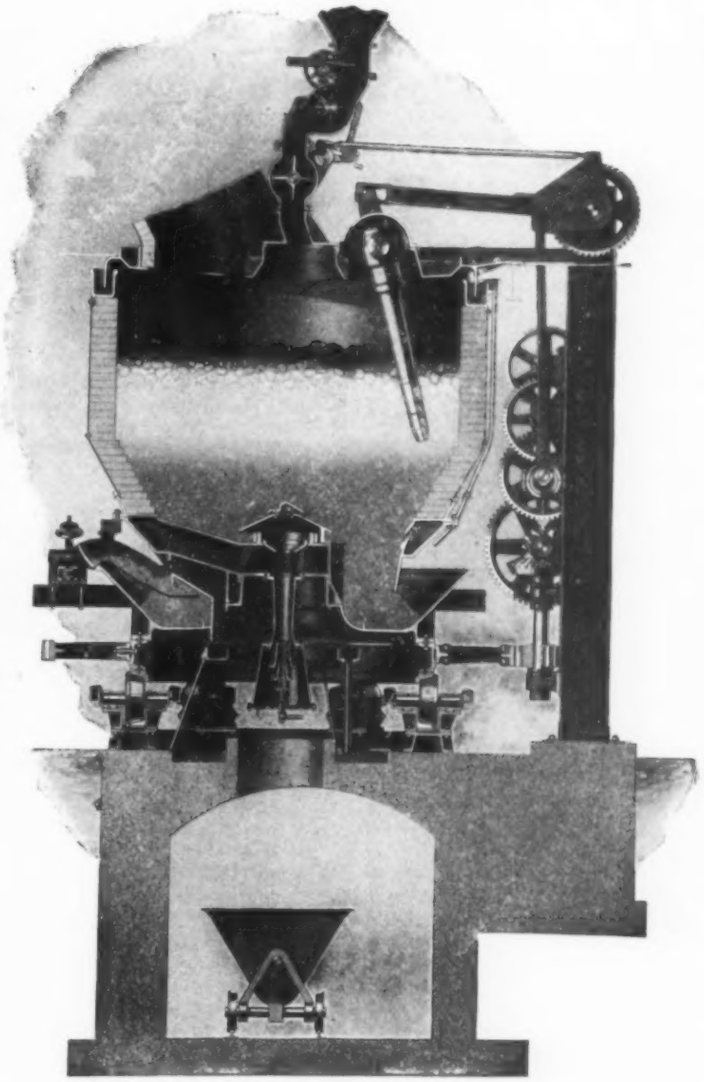
A partial list of repeat customers showing number of Hughes Producers used by each.

Carnegie Steel Co.	119
American Steel & Wire Co.	56
Bethlehem Steel Co.	54
New Jersey Zinc Co.	42
National Tube Co.	41
Jones & Laughlin Steel Co.	40
Lackawanna Steel Co.	39
Indiana Steel Co.	38
Inland Steel Co.	36
Minnesota Steel Co.	36
Pittsburgh Steel Co.	36
American Sheet & Tin Plate Co.	32
Republic Iron & Steel Co.	32
American Rolling Mill Co.	30
Corrigan, McKinney & Co.	30

More than 1000 in use

Write for Bulletin A-4

Bulletin A-4 contains considerable information on the subject of producer gas and explains the Hughes Uniform Feed, Water Cooled Poker, Blowing, Mixing and other special features which contribute to its splendid performance. A copy is waiting your request.



THE WELLMAN-SEAVER-MORGAN CO.

CLEVELAND, OHIO, U.S.A.

SHEBOYGAN, WIS.—Architects Juul & Smith have awarded the contract for the construction of a local branch packing and refrigerating plant for Armour & Co., Chicago, to J. L. Carnegie & Son, Chicago. It will be 50 x 120 feet.

SHERWOOD, WIS.—Peter Westernberger has awarded contracts to the Immel Construction Co., Fond du Lac, Wis., for the erection of a machine shop, garage and implement warehouse.

TWO RIVERS, WIS.—The Hamilton Mfg. Co. has increased its capital stock from $500,000 to $750,000. Part of the addition will be used to finance the construction of workingmen's homes.

WEST ALLIS, WIS.—The Davis Mfg. Co. has awarded contracts for the erection of a new testing shop and shipping building combined, 63 x 200 feet, to cost $35,000.

BESSEMER, MICH.—The board of education, Arthur Lintelmann, secretary, will take bids until July 22 for the construction of a 3-story fireproof school building, 150 x 200 feet.

DETROIT.—The Stroh Castings Co. is building additions and installing new equipment which will increase the plant's daily capacity to 100 tons.

DETROIT.—The Great Lakes Foundry Co. plans extensive improvements, in order to make the plant a 50-ton modern foundry for motor car castings.

LANSING, MICH. — The Olds Motor Works will build and equip a new plant, 240 x 500 feet, to cost $1,000,000.

PONTIAC, MICH. — The General Motors Co. is planning the erection of a large plant here for the manufacture of tractors.

PORT HURON, MICH. — The American Machine Corp. has begun the erection of a new plant, 103 x 300 feet.

INDIANAPOLIS.—Charles J. Wascher has the contract to erect a $40,000 addition to the plant of the Oakes Co.

INDIANAPOLIS.—The American Hominy Co. has awarded the contract to the Bedford Stone & Construction Co. for the erection of a 6-story mill building to cost $100,000.

INDIANAPOLIS, IND.—A new $225,000 corporation has been formed by officers of the Indianapolis Traction & Terminal Co. to engage in the business of building street cars suitable for the minor cities of the country. Robert I. Tood, John J. Appel and Joseph A. McGowan are the officers and incorporators.

PERU, IND.—A survey has been made of the Wabash, Mississinewa and Eel rivers and Big Pipe creek near here for water power for the city, and the city council will consider the erection of a power plant along one of the streams.

WABASH, IND.—The M. J. Hoffman Co. has taken a contract for the erection of four factory buildings for the Service Motor Co., to cost $100,000.

BOWLING GREEN, KY.—The Park City Machine & Supply Co., capital $10,000, has been incorporated by M. E. Morrison, Edwin Seybold and others.

LOUISVILLE, KY.—The Columbia Truck Co. will build a $120,000 machine shop here.

BLACKEY, KY.—P. M. Clanahan, Charleston, W. Va., is arranging to build a plant here.

LOUISVILLE, KY.—Wuest Brothers have let the contract to E. L. Payne for a machine shop building.

LOUISVILLE, KY.—The Louisville Tin Tag & Novelty Co. will fit up a stamping and printing plant.

LOUISVILLE, KY.—The city waterworks board will take bids on new pump, engine and other waterworks machinery.

LOUISVILLE, KY.—W. R. Martin Broom & Mop Co., this city, will double the capacity of its plant here soon.

LOUISVILLE, KY.—The Inman Veneer & Panel Co. will install a power plant here shortly.

LOUISVILLE, KY.—The plant of the Riddle Mfg. Co. was recently damaged to the extent of $1000 by fire.

LOUISVILLE, KY. — The Alfred Struck Co. has started preliminary work on a new government artillery cantonment at West Point, Ky.

LOUISVILLE, KY. — The Boulier Sheet Metal Works has completed new plant additions and has placed contracts for motors and machinery.

LOUISVILLE, KY. — The Louisville & Nashville railroad let the contract to A. Struch Co., Wilson street, Louisville, for the erection of a $50,000 wheel shop.

LOUISVILLE, KY.—The National Concrete Construction Co. has the contract for erecting an addition to the Louisville cotton mills to cost $25,000.

LOUISVILLE, KY.—The E. I. Du Pont de Nemours Co., Wilmington, Del., has bought a large tract of land here and is having plans prepared for a smokeless powder plant to cost $4,000,000.

LOUISVILLE, KY. — Announcement has been made that the government has arranged for the construction of a powder plant at Louisville. It is understood that Mason & Hanger, Richmond, Ky., will handle the contract.

LOUISVILLE, KY.—The Louisville Board of Water Works has placed a contract with the Worthington Pump & Machinery Co. for a vertical, triple expansion crank and fly wheel pumping engine of 40,000,000 gallons capacity.

MUMFORDSVILLE, KY. — The Glenn-Brook Tire Co. will add considerably to its equipment soon.

OWENSBORO, KY.—The Southern Foundry Co. has increased its capital stock from $60,000 to $100,000 to rebuild the plant which was recently burned.

WEST UNION, W. VA.—The Ideal Window Glass Co. will rebuild its plant here, to cost $30,000.

WINCHESTER, KY. — The Eureka Machine Tool & Supply Co. will fit up a machine shop here.

CINCINNATI.—The Hill-Brunner Foundry Supply Co. is planning additions and improvements, but so far plans have not been completed.

CLEVELAND.—The P. A. Geier Co. is contemplating the erection of an addition, 39 x 64 feet, of reinforced concrete.

Up and Down the Pacific Coast

OLYMPIA, WASH.—Charles G. Huber has been awarded the contract by the state highway board at $26,388 for two 100-foot steel spans over the Naches river on the McClellan Pass highway.

PORTLAND, WASH.—Pacific Marine Iron Works plans to erect a two-story storehouse.

SEATTLE.—Alaskan Copper Works has a permit to erect a $6000 machine shop.

SEATTLE.—Seattle Pipe & Galvanizing Co. has a site, 120 x 150 feet on which to construct a plant.

SEATTLE.—Puget Sound Machinery Depot has a permit to erect a 60 x 260-foot warehouse to cost $20,000.

SEATTLE.—The Burton R. Stare Co. has the contract by the city for a 1000-kilowatt motor generator.

SEATTLE. — The American Foundry Co., headed by Sumner K. Prescott, has a permit to erect a $10,000 foundry.

SEATTLE.—Wm. Huskamp has a contract to erect a 43 x 114-foot, one-story foundry building for P. J. Appleton, to cost $5000.

SEATTLE. — The Alaskan Copper Works will erect a machine shop, 50 x 87 feet, to cost about $6000.

SEATTLE.—A concrete retaining wall is to be constructed on the West Side that will require about 70,000 pounds of reinforcing steel.

SEATTLE.—At a meeting of the county commissioners of King county, the board authorized the lease of tracts six and seven of the King county industrial sites to the Northwest Motor Co. for the erection of an iron and steel foundry.

SEATTLE.—Architect John Carrigan has finished plans for the construction of a foundry and machine shop building, 43 x 114 feet, for P. J. Appleton. The building will be two stories and of heavy frame construction.

PORTLAND, OREG.—Kerr, Gifford & Co. plan the erection of a 4-story cereal mill on the waterfront.

PORTLAND, OREG. — The City Iron Works will erect a new building.

PORTLAND, OREG. — The Northwestern Electric Co. will erect a 1-story fuel bunker to cost $32,000.

PORTLAND, OREG. — The Pacific Coast Steel Co., which is erecting a $500,000 steel plant, has secured 21 acres in addition to the 12-acre site already owned.

PORTLAND, OREG.—The Valveless Pump & Foundry Co. has leased the property of the Star Sand Co. and will begin immediate construction of a machine shop and foundry.

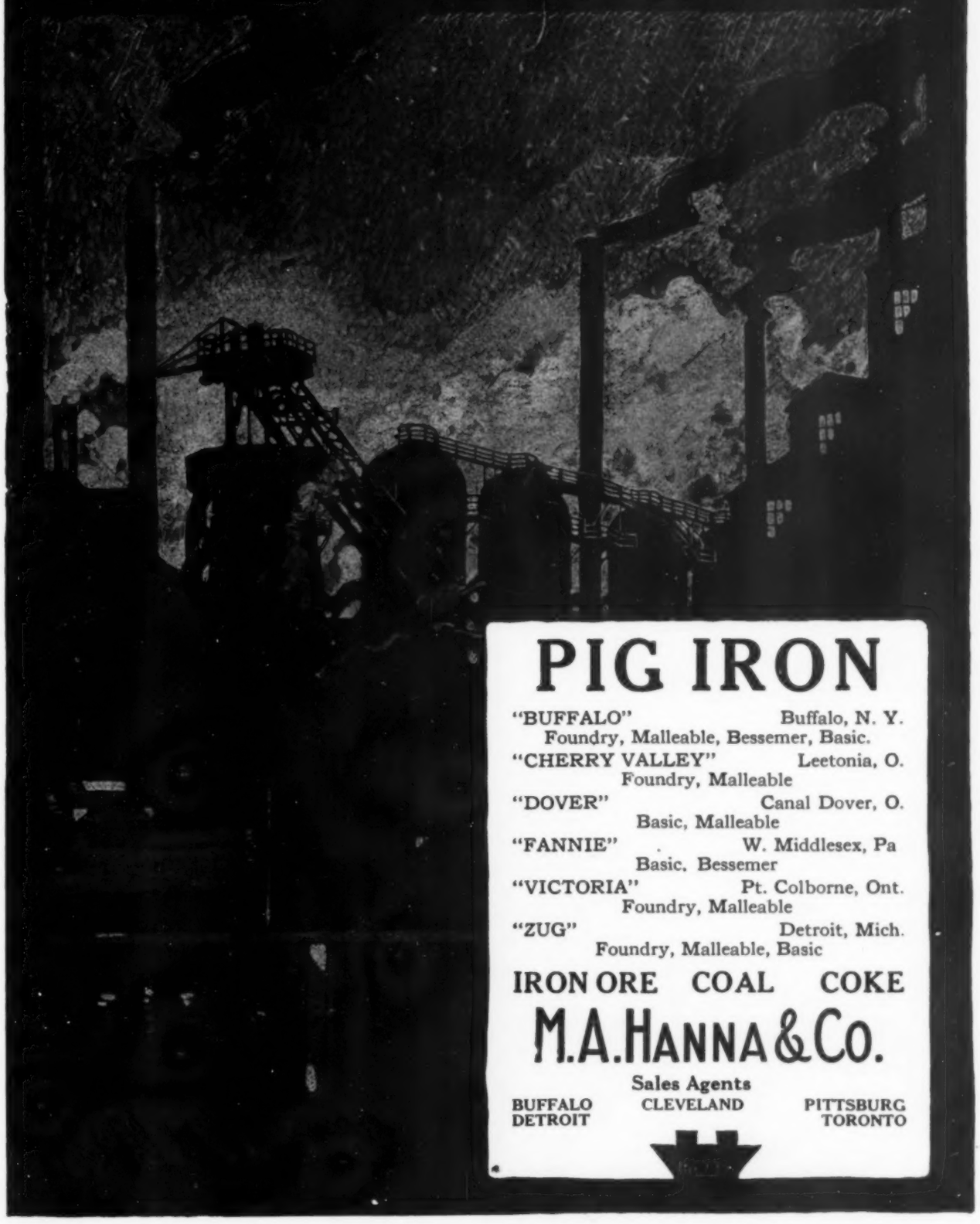
SALEM, OREG.—The Lewis & Clark Railroad Co. of Portland, Oreg., has been organized for constructing a railway system in the valley of the Lewis and Clarke river.

ALAMEDA, CAL.—An aeroplane factory is to be established here, said to be backed by the Union Gas Engine Co. of Oakland, Cal.

ALAMEDA, CAL. — Palmer & Peterson, Monadnock building, San Francisco, has the contract for the construction of a building for the Union Iron Works to cost $54,956.

BENICIA, CAL.—D. P. Doak, 310 Sansome street, San Francisco, will construct a plant for building steel ships.

HANNA



PIG IRON

"BUFFALO" Buffalo, N. Y.
Foundry, Malleable, Bessemer, Basic.

"CHERRY VALLEY" Leetonia, O.
Foundry, Malleable

"DOVER" Canal Dover, O.
Basic, Malleable

"FANNIE" W. Middlesex, Pa
Basic, Bessemer

"VICTORIA" Pt. Colborne, Ont.
Foundry, Malleable

"ZUG" Detroit, Mich.
Foundry, Malleable, Basic

IRON ORE COAL COKE

M. A. HANNA & CO.

Sales Agents

BUFFALO CLEVELAND PITTSBURG
DETROIT TORONTO

New Trade Publications

PIPE.—The A. M. Byers Co., Pittsburgh, is distributing a 4-page folder which gives the results of several microscopical tests of pipe. The cross section is shown under the microscope and is magnified 60 diameters. Micro sections of wrought iron, soft steel and pig iron are illustrated.

FORGES.—The Buffalo Forge Co., Buffalo, is distributing a 32-page booklet containing illustrations and full details of a number of electric, stationary, down draft, heating and manual training forges. The booklet also contains a diagram, showing in what part of a shop forges should be installed.

BEARINGS.—A loose-leaf booklet containing complete data on bearings, recently was published by the U. S. Ball Bearing Mfg. Co., Chicago. The booklet contains a number of tables giving the size and dimensions of the bearings manufactured by this company. It also contains interesting engineering data.

STOKERS. — The Combustion Engineering Corp., New York, has recently issued a bulletin illustrating its line of mechanical stokers. The bulletin contains illustrations of many recent installations of the company's products and reproductions from photographs and drawings showing the mechanism of the stoker in detail.

TICKET BOXES.—A 4-page catalog was published recently by the Ingersoll-Rand Co. describing a ticket cancelling box. This box is built in such a way that the top cannot be taken off unless the whole box is taken apart. It is 50 inches in height and occupies but 17 square inches of floor space. A diagram showing the inside workings is given.

STARTING SWITCHES. — A 4-page 2-color pamphlet has just been issued by the Cutler-Hammer Mfg. Co., Milwaukee, showing four installations of the company's starting switches for squirrel cage motors. An interior view is presented showing the construction and arrangement of the starting and running contacts, fuses, etc.

PUNCH. — The Ingersoll-Rand Co., New York City, recently issued a catalog containing illustrations and describing a punch for punching holes in bits and shanks of hollow drill steel. The punch is air operated and one lever controls its operations. The machine weighs but 400 pounds. It operates best with an air pressure of from 80 to 100 pounds.

REFINERY EQUIPMENT.—An attractive 18-page catalog containing illustrations and describing many machines useful in sugar house work, is being circulated by the Ingersoll-Rand Co., New York. Vacuum pumps, barometric condensers, evaporators, vacuum pans, centrifugal pumps, air compressors, and many pneumatic tools, are illustrated and described briefly. The company has also issued a duplicate Spanish edition of the catalog.

CAR DUMPERS.—An attractive and well illustrated 8-page bulletin, describing car dumpers for rapidly discharging the contents of open-top railroad cars, is being circulated to the trade by the Wellman-Seaver-Morgan Co., Cleveland. Rope load diagrams of the moving, lifting and turnover types are given. The views in the bulletin show only a few of the many car dumpers which this company has built.

STEAM ENGINES. — The Ingersoll-Rand Co. has issued an illustrated circular describing a high-speed, piston-valve steam engine. The engine is self-contained with the steam cylinder bolted direct to a heavy and rigid main frame inclosing the crank crosshead, etc. The steam valve is of the balanced-piston type. Highest steam pressures and superheat may be used. The engine ranges from 15 to 90 horsepower.

PNEUMATIC TOOLS.—A pamphlet recently published by the Ingersoll-Rand Co., describes several pneumatic tools made by the company. An evaporator tube cleaner which consists of a special wire brush. This attached to the end of a long rod, fitting into a drill chuck, is illustrated. Other tools illustrated are, a riveting hammer, riveting hammer with inside trigger, scaling hammer, chipping hammer, motor hoist, reversible boring machine and a non-reversible drill.

BLOWERS.—The Clarage Fan Co., Kalamazoo, Mich., is distributing a 16-page bulletin describing their latest type pressure blower. The latter is especially suited for operating at high speeds and against moderately high pressures. It is completely encased in a housing of steel plates and operates against pressures as low as 1 inch and as high as 20 inches. The bulletin contains numerous capacity tables which give an idea of the range of each size of fan.

AIR COMPRESSORS. — A 4-page leaflet is being circulated by the Ingersoll-Rand Co., illustrating and describing a portable air compressor, which is suitable for mine service where electricity is available. The compressor is mounted on a car and is built so that it can be run either by direct or alternating current. It will maintain an air pressure from 50 to 100 pounds. The machine is automatically lubricated and is equipped with a hopper type water jacket which requires but one filling a day.

CHARGING EQUIPMENT. — The Cutler-Hammer Co. recently published a 4-page pamphlet describing electric charging equipment for electrically-driven trucks. The panel frame is designed to hold from one to six units, which may be installed all at one time, or one at a time, depending on the number of vehicles to be charged. The charger is equipped with a card holder, battery fuses, instrument fuse, indicating lamp, meter reading switch, a low current cut out and a 15-step rheostat.

BUILDING PRODUCTS.—A useful and handy booklet for architects and builders, recently was issued by the Truscon Steel Co., Youngstown, O. This booklet contains complete information in regard to the company's products, as well as tables showing the strength, durability, carrying capacities, etc. Illustrations of all the various products are given, covering reinforcing steel, floor tiles, metal lath, pressed steel joists and studs, highway reinforcement, curb bars, concrete inserts, steel windows, steel buildings, hollow tile, etc.

BOILER FEED PUMPS. — A pamphlet recently issued by the De Laval Steam Turbine Co., Trenton, N. J., illustrates and describes a combined steam turbine and centrifugal boiler-feed pump. The turbine is of the velocity-stage type and the pump contains either two or three impellers, according to the pressure of the boiler. The pump is unusually small both in size and weight. These pumps are made in capacities ranging from 2000 to 10,000 boiler horsepower. Electric motor-driven units are also described and illustrated.

COPPER CLAD STEEL WIRE.—A 104-page illustrated book just issued by the Page Steel & Wire Co., Monessen, Pa., contains notes on the manufacture of wire in general, on physical and electrical properties of composite copper clad wire, gives tests, specifications and suggestions for determining sizes of wire on high tension, trolley, telephone, telegraph, signal, police and fire alarm lines, and contains much information for calculating line drop, feeders and short transmission lines, sag and tension in spans, etc. A copy will be mailed on application to Page Steel & Wire Co., 30 Church street, New York.

CUTTING TOOLS.—A 6-page leaflet on cutting tools for shell manufacture is being distributed by the Wetmore Mechanical Laboratory Co., Milwaukee. The leaflet describes and illustrates hand sizing taps for United States and British shells, expanding reamers for finish sizing the fuse holes of shells, and special lathes and boring tools. The expanding reamer illustrated is of the floating type, which is self centering, which construction makes it possible to remove the blades when they become worn, without taking the entire tool apart. Both solid and expanding taps are illustrated.

STEEL PRODUCTS.—A revised list of steel products manufactured by the Midvale Steel & Ordnance Co., and its subsidiary companies has been issued in the form of a convenient booklet. It presents a wide variety of articles, "from a 0.0005-pound nail to a 200-ton casting." The index is presented in alphabetical order, requiring 53 pages. It includes only the most important of the products, a preface stating that information concerning many others which may be required may be obtained by inquiry. A considerable number of the new products listed are particularly applicable in the manufacture of munitions.

ORNAMENTAL IRON WORK.—The Decatur Cornice & Roofing Co., Inc., Albany, Ala., has just issued a 68-page catalog describing its products. Many illustrations of marquees, stairways, railings, balcony brackets, fire escapes, window guards, gates, etc., are included together with a number of useful tables for the constructor. These include data on columns, column caps and bases, standard steel I-beams, standard steel channels, standard steel angles, cast iron lintels and wooden beams, giving safe loads. A table of weights of square and round steel is also included.

WATER HEATERS.—A circular on water heaters, expansion joints, and surface condensers is being distributed by the Ross Heater & Mfg. Co., Buffalo. The heater is designed to permit the expansion of tube ends into two separate floating heads so that tubes carrying the hotter water expand more than those containing the cooler liquid. The condenser has a cooling surface consisting of thin copper tubes designed to make every tube capable of cooling effect. The expansion joint is made for high or low pressure, high or low temperature, for lines carrying oil, gas or

water, and for superheated, saturated, or exhaust steam.

FURNACES. — A well illustrated bulletin has been issued by the W. S. Rockwell Co., New York, containing valuable information concerning forging and heating furnaces. The booklet lays claim to the fact that much heat, which ordinarly escapes from a furnace is recovered by an economizer; the furnace also is equipped with a shield, which acts as a barrier between the operator and the escaping heat, enabling him to work closer and handle his material quickly. The booklet gives a good description of all the furnaces illustrated, all of which are of the small type, used for heating small and medium-sized stock for drop forging.

COOLING TOWERS.—A 28-page booklet on cooling towers recently was published by the Wheeler Condenser & Engineering Co., Carteret, N. J. Natural draft and forced draft towers of many designs ranging in capacities from a few thousand gallons per hour to a million gallons an hour are illustrated and described. The booklet also contains tables of temperature and humidity in the different parts of the United States. Illustrations of other products of the company, including high vacuum surface condensers; barometric condensers; vertical jet-condensers; suction air pumps; centrifugal pumps; water heaters; and atmospheric relief valves are also given.

FORGES. — A catalog containing illustrations of more than 100 portable forges manufactured by the Buffalo Forge Co., Buffalo, is being distributed by the company. Many of the forges are especially adapted for use by machinists, boilermakers, bridge builders, ship builders, and other manufacturing concerns. An electric forge, especially adapted for heavy work is of interest. It has a heavy cast iron hearth mounted on steel pipe legs, and is furnished with a variable or constant speed blower. It weighs 600 pounds. Another forge of interest is a compressed air type, which is operated by compressed air at from 15 to 100 pounds pressure. The booklet is well illustrated, each forge being described in detail.

WIRE AND NAILS.—A handy booklet has been issued by the Cambria Steel Co. presenting full information with reference to the great variety of wire and nails which it manufactures. The book is well illustrated, cuts showing exact sizes of smooth, barbed and twisted wire and the various styles of nails. A fine wire nail weighing 0.0005 pound and a gigantic steel casting weighing 200 tons represent two of the extremes which convey an idea of the wide range of steel products manufactured by the Cambria Steel Co. and the Midvale Steel & Ordnance Co. The booklet contains a table showing the approximate number of wire nails per pound. Prices are quoted on practically every type of nail used in the trades and industries. Tables also show the comparative sizes of wire gages, sizes, weights and lengths of wire.

MILLING MACHINES. — Two bulletins, devoted respectively to milling machines and radial drills were recently published by C. M. Conradson, Eau Claire, Wis. In the Conradson type of milling machine the base is 7½ inches deep and consists of a top and bottom plate, connected by numerous webs, so disposed, it is said, as to resist the stresses set up in use. It is provided with a drainage channel running clear around, and provision is also made for the attachment of a tank and geared pump. The column is a hollow cylinder bolted firmly to the base. One side of the column is slotted to provide room for the elevating screw and nut. The arm is of heavy box section and glides directly on the column, having a bearing 36 inches long. The weight of the arm is supported by a heavy ball bearing.

LIFT TRUCKS.—A handsomely illustrated and well arranged 32-page catalog devoted to lift trucks has been issued by the Stuebing Truck Co., Cincinnati. The wide application of these lift trucks is shown pictorially. The handling of core racks in foundries is illustrated, these racks being conveyed from the core rooms to the ovens by these trucks and by the employment of only one operator. Other illustrations show the handling of steel in the plant of the Standard Parts Co., Cleveland; foundry supplies in the plant of the Cleveland Osborn Mfg. Co., Cleveland; machine tools in the plant of the Cincinnati Shaper Co., Cincinnati; automobile castings in the plant of the Continental Motors Corp., Detroit, etc. Common types of platforms and racks also are illustrated which are adapted to almost all industrial purposes.

LOCOMOTIVE CRANES.—A 16-page bulletin, devoted almost entirely to reproductions of photographs showing locomotive cranes in action and presenting on the last two pages, specifications such as, clear lift of bucket, clear lift of wood block, specifications of grab buckets, including their capacity, weight and dimensions, has been published by the Link-Belt Co., Chicago. The photographs are unusually interesting for they show the diversified line of work to which a locomotive crane may be adapted. They are shown in action on blast furnaces, at stone quarries, on barge work, construction work, on track elevations, at paper mills and on shipbuilding work. One photograph shows a specially constructed goose-neck crane, that is, a crane in which the end of the boom is at an angle to the boom proper, used for handling coal over a trestle.

MINING AND INDUSTRIAL CARS.—A 43-page bulletin, No. 17, has been issued by the Lake Shore Engine Works, Marquette, Mich., describing mining and industrial cars. Sizes and dimensions are given for several types of cars including a standard low-dump type; a square bottom, side and end-dump type; an end and rotary-dump type; an end-dump, wooden-truck type, an all-steel type with rocker dump; and, an Oliver type with a gable bottom. The end-dump, low-type car is used extensively on the Menominee range. The trucks and frame are securely riveted to the car body. The car dumps on an end tipple or a rail drop and is equipped with a continuous bumper with steel plate reinforcement on the ends. The door is opened automatically by means of two steel hooks. Each car is arranged either for hand or motor tramming. A similar description is given for each type of car illustrated in the bulletin.

LIGHTING. — An unusually attractive booklet entitled "Lighting for Production and Safety" is being distributed by the Cooper Hewitt Electric Co., Hoboken, N. J. The booklet points out the necessity of correct lighting conditions for the comfort of the men, showing how individual producing power is increased in the same proportion that working conditions approach perfection. Light, to be correct, should be of such intensity that an operator can work without straining his eyes, and yet not be of such high intrinsic brilliancy that the pupil of the eye contracts to such an extent that it cannot see properly. Light should be free from glare and have good diffusion with absence of flicker. It should be of such color that the best vision is obtainable, and should not cast sharp shadows. It is believed, according to the bulletin, that these conditions have been approached in the plant of the Dodge Bros. Co., several photographs of which are reproduced in the bulletin.

GRAB BUCKETS.—An attractive bulletin is being sent out by the Owen Bucket Co., Cleveland, describing its line of grab buckets. The crosshead is made in one piece from a reinforced steel casting. It houses the upper closing line block which is skewed at the proper angle to give fair leads to the closing line and is equipped with side rollers and guide sheaves. The closing blocks are provided with spools which prevent the closing line leaving the sheaves regardless of the length of line payed out. The sheaves, which are bronze bushed, are lubricated through pins by grease cups. The arms are constructed of forged steel bars and are cross-braced to preserve rigidity and proper alignment of the closing blocks. Cast-steel hinges are used and are heavily ribbed. The arm shaft is made of cold-rolled steel with collars and cotter pins at each end. It is housed in a tube which protects the bearings from grit and dirt. The bucket is reinforced throughout. The bulletin is profusely illustrated and shows the different ways in which these buckets are being used throughout the country.

BALL BEARINGS.—The first edition of a manual on the subject of ball bearings was issued recently by the New Departure Mfg. Co., Bristol, Conn. It contains considerable information of value for all users of ball bearings. It is a complete, yet concise treatise discussing installation practice and improved methods of lubrication and adjustment. It contains 58 pages and is well illustrated, showing many views of ball bearings in operation, results of their misuse, phantom drawings of the mechanisms in operation, and diagrams of construction and installation. Double row, single row, radial and magneto bearings are described, and there are chapters on the installation of various bearing types, applying and removing ball bearings, making adjustments, lubrication and cleaning, how ball bearings are mounted in automobiles, engines, clutches, axle parts, truck wheels and change-speed gearing. Every step in applying and removing ball bearings without damage is illustrated with halftones. The importance of using the best lubricants and properly housing ball bearings to prevent entrance of water or dirt is emphasized in illustrations showing the results of misuse. This manual should solve many problems.

HIGH CONDUCTIVITY COPPER CASTINGS.—A 16-page booklet issued by the Titanium Bronze Co., Niagara Falls, N. Y., is devoted to its line of high conductivity copper castings. It is well known that small quantities of impurities in copper castings greatly reduce their conductivity, but the castings made by this company contain 0.03 per cent or less of impurities, guaranteeing a minimum electrical conductivity of 75 per cent and run as high as 93 per cent depending largely upon the design. It frequently is assumed that castings containing 98 per cent of copper will have a similar conductivity, but this does not follow since the remaining 2 per cent of other ingredients actually may reduce the electrical conductivity as low as 40 per cent. The Titanium Bronze Co. produces castings containing as high as 99.8 per cent copper with a consequent high electrical conductivity. Extensive research with special deoxidizers enables the Titanium company to produce almost pure copper castings averaging 89 per cent electrical conductivity. If hardness and maximum conductivity are desired this can be obtained in simple shaped castings by forging. A special process also has been devised for producing density in massive castings.

Iron and Steel Prices

Corrected to Tuesday Noon

IRON ORE

Superior Ores, Per Ton, Lower Lake Ports	
Old range Bessemer, 55 iron	$6.40
Mesabi Bessemer, 55 iron	6.15
Old range non-Bess., 51½ iron	5.65
Mesabi non-Bess., 51½ iron	5.50

WAREHOUSE PRICES

Steel bars, Chicago	4.17c
Steel bars, Cleveland	4.07c
Steel bars, Detroit	4.13c
Steel bars, Philadelphia	4.13c
Steel bars, New York	4.145c
Steel bars, St. Louis	4.24c
Steel bars, Cincinnati	4.13c
Steel bars, St. Paul	4.395c
Steel bars, Buffalo	4.10c
Iron bars, Buffalo	4.70c
Iron bars, Chicago	4.10c
Iron bars, Cleveland	4.67c
Iron bars, Detroit	4.75c
Iron bars, St. Louis	4.24c
Iron bars, Cincinnati	4.13c
Iron bars, Philadelphia	4.60c to 4.73c
Iron bars, New York	4.745c
Shapes, Chicago	4.27c
Shapes, Detroit	4.23c
Shapes, St. Louis	4.34c
Shapes, St. Paul	4.495c
Shapes, New York	4.245c
Shapes, Cleveland	4.17c
Shapes, Philadelphia	4.23c
Shapes, Buffalo	4.20c
Shapes, Cincinnati	4.23c
Plates, Buffalo	4.45c
Plates, Chicago	4.52c
Plates, Detroit	4.48c
Plates, St. Louis	4.59c
Plates, St. Paul	4.745c
Plates, New York	4.495c
Plates, Cleveland	4.42c
Plates, Philadelphia	4.48c
Plates, Cincinnati	4.48c
No. 10 blue anl. sheets, Chi.	5.52c
No. 10 blue anl. sheets, Cleve.	5.42c
No. 10 blue anl., Buffalo	5.45c
No. 10 blue anl., sheets, St. L.	5.59c
No. 10 blue anl. sheets, Cinci.	5.48c
No. 10 blue anl. sheets, St. Paul	5.745c
No. 10 blue anl. sh., Detroit	5.48c
No. 28 black sheets, Chgo.	6.27c
No. 28 black sheets, Cleve.	6.42c
No. 28 black sheets, Cinci.	6.48c
No. 28 black, Detroit	6.48c
No. 28 black sheets, St. L.	6.59c
No. 28 black sheets, St. Paul	6.745c
No. 28 galv. sheets, Chgo.	7.52c
No. 28 galv. sheets, Cleve.	7.67c
No. 28 galv. sheets, Cinci.	7.73c
No. 28 galvanized, Detroit	7.73c
No. 28 galv. sheets, St. L.	7.59c
No. 28 galv. sheets, Buffalo	7.70c
Hoops, Cleveland	4.92c
Hoops, Detroit	4.98c
Hoops, Buffalo	4.95c
Cold rolled sheets, Buffalo	6.45c
Cold rolled steel	list and 10

IRON AND STEEL SCRAP

(Prices in Gross Tons)

STEEL WORKS USE

Bundled sheets, Cincinnati	$22.50 to 23.00
Bundled sheets, Pittsburgh	22.00
Bundled sheets, Cleveland	24.50 to 25.50
Bundled sheets, Buffalo	24.00 to 25.00
Boiler plate, cut, No. 1, Chg.	25.00 to 26.00
Boiler plate, cut No. 1, St. L.	25.50 to 26.00
Frogs, switches, guards, St. L.	28.50 to 29.00
Frogs, switches, guards, Chgo.	29.00
Heavy melting steel, Pitts.	29.00
Heavy melting steel, Buffalo	30.00
Heavy melting steel, Chgo.	29.00
Heavy melt'g steel, Cleveland	29.00
Heavy melting steel, Cinci.	28.00 to 28.50
Heavy melt'g steel, east. Pa.	28.00 to 29.00
Heavy melting steel, N. Y.	25.50 to 26.00
Heavy melting steel, St. L.	28.50 to 29.00
Heavy melt'g steel, Birming.	26.00 to 26.50
Baled sheets, Cleveland	28.50 to 29.00
Baled sheets, Pitts.	26.00
Baled sheets, Chgo.	26.00 to 26.50
Knuckles, couplers, Chgo.	34.00
Knuckles, coup., St. Louis	33.00 to 33.50
Low phos. steel, Buffalo	37.50
Low phos. steel, Pittsburgh	39.00
Low phos. crops eastern Pa.	39.00
Low phos. guaranteed E. Pa.	36.50
Shoveling steel, Chicago	29.00
Shoveling steel, St. Louis	28.50 to 29.00
Springs, Chgo.	34.00
Steel rails, short, Chicago	34.00
Steel rails, short, Cleveland	34.00
Steel rails, short, St. Louis	30.75 to 31.25
Steel rails, old, Birmingham	26.00 to 28.00
Stove plate, Chgo.	25.50 to 26.50
Stove plate, Cincinnati	22.50 to 23.00
Stove plate, St. Louis	24.50 to 25.00
Stove plate, N. J. points	24.50
Stove plate, Birmingham	23.00 to 24.00
Stove plate, Buffalo	24.00 to 25.00
Stove plate, eastern Pa.	26.50
Stove plate, Cleveland	25.00 to 25.50
Stove plate, Pittsburgh	22.00

Freight Rates, Pig Iron

Mahoning and Shenango valleys to:	
Cleveland	$1.40
Newark, N. J.	4.40
Boston	4.60
Philadelphia	4.10
Pittsburgh	1.40
St. Louis	4.60
Minneapolis, St. Paul	5.70
Buffalo to:	
Albany, N. Y.	$1.75
New England (rail)	3.90
New York and Brooklyn (rail)	3.90
Virginia furnaces to:	
Philadelphia	$4.10
New England	4.70
Brooklyn, Jersey City, Newark	4.40
Birmingham, Ala., to:	
Boston	$7.50
Cincinnati	3.60
Chicagó	5.00
Cleveland	5.00
Louisville, Ky.	3.30
Minneapolis, St. Paul	7.30
New York (r. and w.)	7.50
Philadelphia (r. and w.)	6.60
Pittsburgh	6.10
Savannah, Ga.	3.40
St. Louis	4.25
Chicago to:	
Des Moines	$3.50
Minneapolis, St. Paul	2.50
Milwaukee	.60
Moline, Ill.	1.40
Omaha	4.50
St. Louis	1.90
Ironton and Jackson, O., to:	
Chicago	$3.75
Cincinnati	1.75
Cleveland	2.40
Detroit	2.60
Indianapolis	2.30
Minneapolis, St. Paul	5.70
Duluth, Minn., to:	
Minneapolis, St. Paul	$1.60
Mayville, Wis.:	
Minneapolis-St. Paul	$2.20

Freight Rates, Finished Material

Pittsburgh, carloads, per 100 lbs., to:	
New York	24.5 cents
Philadelphia	23.0 cents
Boston	27.0 cents
Buffalo	21.5 cents
Baltimore	22.5 cents
Cleveland	17.0 cents
Cincinnati	23.0 cents
Chicago	27.0 cents
Detroit	23.0 cents
Minneapolis and St. Paul	49.5 cents
Denver	$1.09
St. Louis	33.5 cents
New Orleans	38.5 cents
Birmingham	56.5 cents
Pacific coast (all rail)	$1.25
Pacific coast (tin plate)	1.25

IRON MILL USE

Angle bars, iron, Chgo.	39.00
Angle bars, steel, St. Louis	30.75 to 31.25
Angle splice bars, St. Louis (iron)	37.50 to 38.00
Arch bars, transoms, Chgo.	45.50 to 46.50
Arch bars and transoms, St. Louis	44.00 to 44.50
Busheling, No. 1, Cleveland	29.00 to 30.00
Busheling, No. 1, Buffalo	29.00 to 30.00
Busheling, No. 2, Buffalo	21.00 to 23.00
Busheling, No. 1, Pittsburgh	32.00
Busheling, No. 1, Cincinnati	25.00 to 25.50
Busheling, No. 1, Chgo.	29.50 to 30.00
Busheling, No. 2, Chgo.	19.50 to 20.50
Busheling, No. 1, St. Louis	25.50 to 26.00
Cast borings, New York	15.50 to 16.00
Cast borings, eastern Pa.	19.00
Cast borings, Buffalo	18.00 to 19.00
Cast, borings, Cleveland	18.50 to 19.00
Cast borings, Cincinnati	17.00 to 17.50
Cast borings, Pittsburgh	19.00
Cast borings, Birmingham	17.00 to 18.00
Cast borings, Chgo.	18.50 to 19.00
Cast borings, St. Louis	18.00 to 18.50
City wrought, long, N. Y.	30.00
Cut forge, Chgo.	31.50 to 32.00
Forge flashings, small, Cleve.	27.00 to 27.50
Forge flashings, large, Cleve.	27.50 to 28.00
Forge No. 1, eastern Pa.	27.50 to 28.50
Grate bars, Buffalo	24.50 to 25.00
Grate bars, Cleveland	25.50 to 26.00
Grate bars, N. J. points	24.50
Iron axles, Pittsburgh	46.50
Iron axles, Cincinnati	43.50 to 44.00
Iron axles, Cleveland	46.50
Iron axles, Chicago	46.50
Iron axles, eastern Pa.	46.50
Iron axles, St. Louis	46.00 to 46.50
Iron axles, Buffalo	45.00 to 47.00
Iron rails, Chicago	39.00
Iron rails, Buffalo	36.00 to 37.00
Iron rails, Cincinnati	34.00 to 35.00
Iron rails, St. Louis	38.00 to 38.50
Iron rails, Cleveland	37.00 to 38.00
Machine turnings, Cincinnati	17.00 to 17.50
Machine turnings, Cleve.	18.00 to 18.25
Machine turnings, Buffalo	17.00 to 17.50
Machine turnings, N. Y.	15.50 to 16.00
Machine turnings, Pitts.	18.00 to 19.00
Machine turnings, east. Pa.	19.00
Machine turnings, Birming.	16.00 to 17.00
Machine turnings, Chicago	17.75 to 18.25
Machine shop turnings, St. L.	18.00 to 18.50
Pipes and flues, Cleveland	28.00 to 29.00
Pipes and flues, Chicago	27.50 to 28.00
Pipes and flues, St. Louis	26.25 to 26.75
R. R. mch. cast, No. 1, Buff.	34.00
R. R. wrgt. No. 1, Buffalo	34.00
R. R. wrgt., No. 1, east Pa.	34.00
Railroad wrgt. No. 1 Cinci.	33.50 to 34.00
Railroad wrgt., No. 1, Cleve.	34.00
R. R. wrought, No. 1, Pitts.	34.00
Railroad wrgt., No. 2, Chgo.	31.50 to 32.00
Railroad wr'ght, No. 1, Chgo.	33.50 to 34.00
R. R. wrgt. No. 1, Birming.	27.00 to 28.00
No. 1 yard wrought East Pa.	33.00
No. 1 busheling wrgt., E. Pa.	31.00
Sheet wrought, Pittsburgh	34.00
Railroad wrgt., No. 1, St. L.	33.00 to 33.50
Railroad wrought, No. 2	32.50 to 33.00
Wrought pipe, Buffalo	27.00 to 28.00
Wrought pipe, eastern Pa.	33.00
Wrought pipe, ungraded, eastern Pa.	29.00

IRON OR STEEL WORKS USE

Axle turnings, Cleveland	$24.00
Axle turnings, Buffalo	24.00
Heavy axle turn'gs, E. Pa.	24.00
Heavy axle turnings, Pitts.	24.00
Shafting, New York	35.50
Shafting, eastern Pa.	39.00
Steel car axles, Pittsburgh	46.50
Steel car axles, Birmingham	30.00 to 32.00
Steel car axles, New York	43.00
Steel car axles, Buffalo	44.00 to 46.00
Steel car axles, Cleveland	44.00
Steel car axles, eastern Pa.	46.50
Steel car axles, Chgo.	46.50
Shafting, St. Louis	38.50 to 39.00
Steel car axles, St. Louis	46.00 to 46.50

IRON FOUNDRY USE

Car wheels, (iron), Pitts.	$29.00
Car wheels, (steel), Pitts.	34.00 to 35.00
Car wheels, eastern Pa.	29.00
Car wheels, Buffalo	29.00
Car wheels, Chicago	29.00
Car wheels, St. Louis	28.50 to 29.00
Car wheels, Birmingham	27.00 to 28.00
Car wheels, Cleveland	30.00
Tram car wheels, Birming.	27.00 to 28.00
Cast, No. 1, Birmingham	27.00 to 28.00
Cast, No. 1, cupola east. Pa.	34.00
Cast No. 1, Cleveland	32.00 to 33.00
Cast, No. 1, Cincinnati	32.00 to 32.50
Cast, 1, heavy, N. J. points	32.25 to 32.75
Cast, 1, machy., N. J. points	32.50 to 32.75
Cast, No. 1, Chicago	31.50 to 32.00
Cast, No. 1, Pittsburgh	32.50 to 33.00
Cast, No. 1, St. Louis	28.50 to 29.00
Malleable, Cincinnati	30.00 to 34.00
Malleable, Cleveland	30.00 to 34.00
Malleable, Buffalo	29.00 to 34.00
Malleable, Pittsburgh	33.00 to 34.00
Malleable, east. Pa.	29.00
Malleable, cupola, East Pa.	33.00
Malleable railroad, Chgo.	33.00 to 34.00
Malleable, agricultural, Chgo.	32.00 to 32.50
Malleable railroad, St. Louis	31.00 to 31.50
Malleable agricultural, St. L.	29.50 to 30.00

MISCELLANEOUS USES

Boiler punchings, Chgo.	36.00 to 36.50
Reroll. rails, 5 ft. & ov., Pitts.	34.00
Reroll. rails, 5 ft. & ov., Chgo.	34.00
Reroll. rails, 5 ft. & ov., E. Pa.	34.00
Reroll. rails, 5 ft. & ov., St. L.	33.50 to 34.00
Reroll. rails, 5 ft. or over, Cleve.	34.00
Rerolling rails, long, Birm.	37.50 to 38.50
Locomotive tires, Chgo.	45.50 to 46.50
Locomotive tires, St. Louis	41.50 to 42.00